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## Critical Food Situations

### Stimulate Interest in Veterinary Medicine

The basic facts of farming and livestock husbandry underlying the production of ample food for multiplying populations and the preservation of soil fertility to meet the increasing needs of each future year, arouse but nominal attention in normal times, whereas,

in times of emergency, caused by unusual vicissitudes, the margin between apparent abundance and actual shortage becomes evident and turns all minds toward the source of food and intricate mechanism and strategy required to produce it.

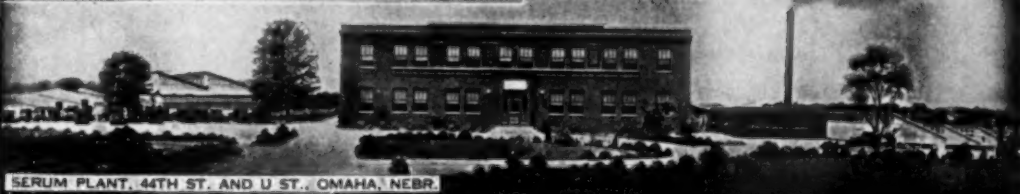
THESE FACTS ACCOUNT FOR THE STIMULATED INTEREST IN VETERINARY SCIENCE AND ITS MOST STRATEGIC APPLICATION IN THE AMERICAN CORNBELT; AND THEREIN LIES THE OBLIGATION OF THE SERUM INDUSTRY IN THE WAR EFFORT.



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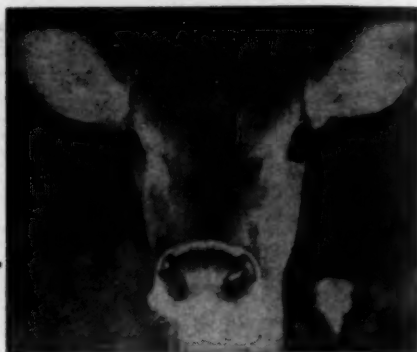


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# Journal of the American Veterinary Medical Association

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## Canadian Veterinary Service, Its Wartime Work

LIEUT. COL. A. E. CAMERON, M.C., V.D., V.S.

*Ottawa, Ontario*

IT IS PROBABLE that the veterinary profession in Canada has suffered less disorganization in this war than any other body of professional men. One of the main reasons for this is the fact that the Royal Canadian Army Veterinary Corps was disbanded in 1940 and was never mobilized for this war. In the last Great War, the veterinary profession supplied all of the commissioned personnel for the Royal Canadian Army Veterinary Corps and in addition supplied many veterinary officers for the British veterinary service. There are many of these veterans in Canada today. Their service extended over most of the world and their experience included, besides the normal transport animals we are accustomed to, the care of elephants, camels, and yaks right down to pigeons and white mice.

The veterinary profession in Canada is proud of this record and bitter disappointment followed the disbandment of the R.C.A.V.C., as veterinarians are convinced that there is a wide field of usefulness they could cover. The fact remains there are no horsed units in the Canadian Army and as the Canadian Army Veterinary Corps never did undertake meat inspection and inspection of other foods, the disbandment of the corps was a logical conclusion from an army point of view. Actually, there are a few veterinarians employed in the Canadian forces but they are employed on special duties and their numbers do not influence the work of the profession as a whole in Canada.

The acute shortage of veterinarians during the last war has consequently not been

experienced during this world conflict, although difficulty has been experienced in obtaining personnel for the governmental service, especially in meat inspection. The vast increase in overseas exports of meats mainly pork has necessitated the employment of more veterinary inspectors in the meat-inspection section of the Health of Animals Division and some have been taken in from the field service to meet this need. Most of the graduates from the two veterinary colleges in Canada have entered the government service but enough remain to leave no apparent shortage of veterinary practitioners.

As veterinarians now enter the army on the same basis as other citizens, the officials of the Bureau of Technical Personnel have not found it necessary to draft many veterinary practitioners except where there appeared to be too many for a specified district. Probably those veterinarians whose practices were restricted to small animals have found it more difficult to obtain exemption from military service. The military age also reduces the number of those eligible for service. In the federal meat inspection, no difficulty has been experienced in obtaining exemption for men required on the ground of public welfare.

Fortunately in Canada, we have not had to deal with serious disease so far during the war, except hog cholera in a couple of counties and odd cases of rabies in Windsor, Ontario. By serious disease is meant those diseases for which regulations have been enacted and which if left uncontrolled, tend to spread throughout the country. This happy situation has enabled the test-

ing of cattle for tuberculosis to be continued and considerable progress has been made in spite of the reduced appropriations available because of war conditions.

In the case of brucellosis or Bang's disease, a large amount of work is being done under provincial auspices in New Brunswick, Quebec, Ontario and British Columbia, in addition to plans carried out under the Dominion Health of Animals Division. Vaccination of calves or calfhood vaccination is permitted but only by duly qualified veterinarians. The sale or importation of calfhood vaccine is permitted only for use by provincial governments or veterinary practitioners.

The other important section of the Health of Animals Division is meat inspection and in this service the effect of wartime conditions was immediately and definitely felt. During the first six months of the war there was a sharp increase in the output of pork from Canadian packing plants, amounting to approximately 83,000,000 lb. Contracts to supply the British people increased year by year. The Dominion Department of Agriculture with the coöperation of provincial departments engaged in educative campaigns among live stock men and farmers throughout Canada.

This combined with large crops and the difficulty in disposing of grain for export has resulted in a great increase in hog raising and a corresponding increase in hog slaughtering throughout Canada, especially in the prairie provinces.

Producers, packers, and governmental agencies have been alive to the necessity of establishing the export bacon business on a basis of quality. It is to the credit of Canadian packers that no attempt has been made to use the wartime demand as an excuse for lowering the quality in the very large amount of bacon and pork products exported. In fact, there has been a genuine and effective coöperation by everyone concerned in maintaining and raising standards of quality.

Under ordinary conditions, the Health of Animals Division is not concerned with quality nor are standards of quality established under the Meat and Canned Foods Act. Under present conditions, the export of bacon is carried out by the Bacon Board and meat inspectors are asked to coöperate in all possible directions while the pork passes through the various stages of manu-

facture. This coöperation has been given willingly and effectively and the Health of Animals Division is entitled to a share of the credit for the reputation Canadian bacon now enjoys on the British market. All bacon for the British market is actually exported through the Bacon Board, established for this purpose and the Bacon Board deals with the British Ministry of Food. This board coördinates the transportation so that shipments arrive when ships are available or arrange for cold storage if arrangements are upset through the exigencies of war. Great efforts have been made to standardize the products by uniform curing and grading of the bacon for export to meet the requirements of the British market. Bales of bacon packed by different firms have been assembled at different centers throughout Canada and the representatives of the packers are present when the bales are opened, judged, and the grading checked. These exhibitions of bacon taken at random from shipments en route to the seaboard, expose any weak spots in the whole process of preparation and shipment. The packers have come to view these meetings and examinations of the finished product *en route* as of great value. The packers and all concerned have coöperated and the results have been a general, all-around improvement in the technique of processing and shipping, which it is hoped will be of permanent benefit. It is safe to say the packing industry accepts these governmental agencies as helpful and not as purely restrictive. The veterinarians of the Department of Agriculture have had a considerable share in this work.

The almost total employment in the country and the enormous demand for farm products milk, butter, cheese, eggs and meat of all kinds has made a great amount of money available in spite of the fixing of prices. Accordingly, veterinary practice has been good and considerable attention has been paid to swine diseases.

Sanitary measures and proper feeding of swine have been stressed in the western provinces, particularly Alberta, where much trouble has been experienced. Swine owners had developed an idea, which assumed that protection against any trouble could be obtained by inoculation, usually with antihemorrhagic septicemia, bacterins, and mixed bacterins, whereas in many cases the

trouble was improper or unbalanced diet and lack of hygiene.

Regulations have been passed restricting the use of some living vaccines to veterinary practitioners. For example, laryngotracheitis vaccine may only be used under the supervision of a veterinarian. It is believed this procedure is sound and will eventually be for the good of all concerned.

Early in June, veterinary delegates from all provinces in Canada held a meeting in Ottawa to discuss the formation of a Veterinary Medical Council of Canada. Progress was made and the proposals were forwarded to the various provincial associations for approval.

Veterinary practice in each province is governed by a provincial veterinary association. The object of the proposed Veterinary Medical Council of Canada is to have a representative body which can speak for the profession as a whole.

A reorganization of the Department of Agriculture in Canada has resulted in the Meat Inspection Division and Contagious Diseases Division being included in Production Service, while the laboratories or Pathological Division is included under Science Service. In the general opinion of veterinarians in Canada, this is a retrograde step. They believe that these divisions are interlocked and complementary to each other and sufficiently large to be a veterinary service without being a part of an agricultural service, the other sections of which have no direct relation to veterinary science. It is believed that any administrative advantages could be obtained without placing the veterinary service in a subservient position, at least to some extent, to an agricultural service.

In the original Health of Animals Branch, the organization was such that all these divisions could be coördinated in dealing with serious disease. Separation of any one division into another service inevitably tends to slow up procedure. In parenthesis, it may be mentioned that when Canadian veterinarians heard of the separation of the Meat Inspection Division from the United States Bureau of Animal Industry, without knowing the reason for this action, they had a feeling of regret at the breaking up of this fine body of veterinarians, whose work had gained an international reputation.

One wonders if such occurrences are not

at least partly our own fault in not emphasizing the fact that such work is done by veterinarians. The public is often ignorant of the specific work done and of the fact that the veterinarian is the keystone of such structures. A large part of the public never comes in contact with or hears of veterinary surgeons and this is a matter the AVMA must continue to deal with.

The veterinary profession has made progress equal to that of any other profession. Their academic foundation is comparable to that of any other curriculum in our universities and the application of their science is really noteworthy.

There is no difficulty in citing cases where the veterinary scientist has shown the way, for example, in the transmission of disease by insect vectors, virus diseases and even surgery. Enormous projects in disease control are well known to us in North America and other countries. The names of individuals are often known to the public for their work, the fact that they are veterinarians is not at all as well known. This is a worth-while subject to consider in improving our status for the happy days we are all looking forward to after the war. In particular, the constant use of the words veterinary or veterinarian should be emphasized. In modern times, veterinary science is producing results second to none and if we are to maintain and improve our position as a profession, we must keep our end up in all ways that are legitimate and ethical.

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### Incidence of Tuberculosis Among Students

An insight into the prevalence of inapparent tuberculosis in human beings was obtained in 1937 at the School of Medicine and the School of Nursing, University of Georgia, by giving the tuberculin test to all students admitted. Out of 316 tested, 52 per cent were positive on admission and 70.5 per cent on graduation. Of 90 student nurses (white), 30 per cent were positive when admitted and 81 per cent when graduated.

Carried out in 1,000 WPA workers, 64.5 per cent of the males and 11 per cent of the females were positive. The rate among colored was 71 per cent for males and 80.5 per cent for females.



## Good Neighbor Program in Peru

FOR THIS insight into the veterinary service of Peru (see opposite page), we are indebted to Lt. Col. Russell McNellis, V.C., U. S.A., through Gen. R. A. Kelser, director of the Veterinary Corps of the Army of the United States. The camera catches Colonel McNellis at work (fig. 3). The pictures are from an illustrated article on "*La Escuela Militar de Ciencias Veterinarias*," published in *El Comercio*, Lima, Nov. 5, 1943, which mentions Colonel McNellis as a member of the scientific staff, and his orientation in the college activities. The pictures were sent at the JOURNAL's request for more information on the Peruvian veterinary situation. Elsewhere in this issue is the abstract of an article by Colonel McNellis published in the December, 1943, issue of the *Bulletin of the Medical Department, U.S. Army*, on an outbreak of atypical anthrax in horses and mules of the Peruvian Army (q.v.).

Oddly enough, coöperation in the application of veterinary science ranks high in cultivating amicable international relations. Professor Panisset (*J.A.V.M.A.*, Feb., 1943) pointed out how France pacified vast areas through bloodless battles waged against animal disease by her veterinarians teaching natives classical methods of treatment and prophylaxis, and establishing modern infirmaries for animals. The zootechnics of all peoples are of the same importance regardless of ethnical status—American, Cuban, Peruvian, or Moroccan—because the health of animals is paramount, little as it has disturbed the general populations up to the present global catastrophe. No country of the world has ever succeeded in developing and using veterinary science to its highest possible level. No political setup has ever assessed the eradication of animal diseases at par value. Of this, there is no contradiction so far as general populations are concerned. If economists have

not muffed the idea, their silence proves the contrary so conclusively that the AVMA has no greater trust than to stress the significance of animal health to all mankind. The objective is the preservation of soil fertility and the production of sufficient wholesome food for populations multiplying by leaps and bounds as productivity of vast acreage wanes. Multiplying populations, millions of acres abandoned because of depleted soil and erosion, and diseases and subnormal nutrition of domestic animals are a vicious circle that has scarcely caused a ripple in the minds of the apparently wisest men. Hence, the JOURNAL's concern in the part animal health plays in the "good neighbor" program.

Since the Surgeon General of the Army has taken our veterinary corps in hand, the whole world seems to better comprehend that taking fuller advantage of veterinary medicine at this period of the world's history is very much in order because widespread rationing of animal products, a critical situation in itself, foreshadows the more far-reaching trend mentioned above. When the quest for commissions for veterinarians of the Army was on, the Medical Department was being pointed out as the proper place for them to function because, it was argued, the health of military animals would receive the most sympathetic attention if directed by the Surgeon General. Events of World War II, including such sidelights as the presence of Colonel McNellis in Peru, prove that no mistake was made.

When land ceases to pay its tillers, and animals do not pay their keepers, the world will crack up—poor and undernourished. While all this may seem grandiose, and spreading the gospel of animal health sounds like a sermon, there is nothing fantastic about it—it's just a bit of common sense, too long overlooked.

### Captions for Illustrations on Opposite Page

Fig. 1—Students of the military school of veterinary science in full dress.

Fig. 2—The bacteriological laboratory of the veterinary hospital.

Fig. 3—Large animal clinic at the veterinary hospital. The operator is Lt. Col. Russell McNellis, V.C., U.S.A. Four senior students are in white gowns. Stocks are shown in the background.

Fig. 4—A view of personnel, forges, and outfits of the school of horseshoeing. The horseshoers are trained

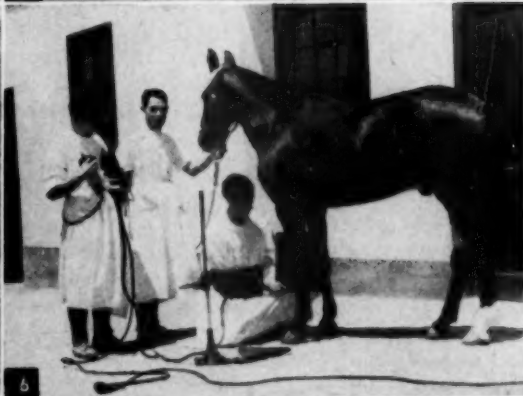
by the veterinary hospital staff. The building is at the right.

Fig. 5—Corrals back of the hospital. The fencing is of tapia (mud brick, dried). The remount depot is seen in the distance.

Fig. 6—Operating the x-ray machine in the diagnosis of lameness. The machine is a Westinghouse portable, purchased through lend-lease.

Fig. 7—Senior students passing the stomach tube.  
Fig. 8—Senior class in small animal surgery. The table was made in the United States.





# Fighting Wastage of Our Food Resources by Organized Research

ROBERT F. GRIGGS, Ph.D.

Washington, D. C.

PERHAPS MY only justification for appearing before you is that my preoccupation with the problem of food has made me believe that organized veterinarians have, in this crisis, a greater rôle than ever they have filled in the past. There is no need in this assembly of calling attention to shortages of milk and meat. There is no need to tell you that it is more important at this time to maintain the productiveness, and the health on which productiveness depends, of the nation's food animals than it ever has been before.

Aside from the general situation brought about by the shortage of food and feed, three events have occurred during the past year which affect the relations of the National Research Council and the AVMA. For many years, you have elected a member to the National Research Council in the division of medical sciences, the present member being Dr. Adolph Eichhorn. This is altogether desirable, but during the past year the Council took cognizance of the fact that veterinarians have interests, and render services, which are as close to agriculture as they are to medicine.

Accordingly, we have invited the AVMA to name a second member to the Council in the division of biology and agriculture. We were very glad this year to welcome Dr. H. H. Dukes in that capacity. You heard reports from both of these gentlemen yesterday.

The second event has sprung from a similar recognition by a recent president of yours, Dr. H. W. Jakeman, of the importance of food animals, which has borne fruit in the Interassociation Council on Animal Disease and Production of which he is chairman, wherein representatives of the five national societies concerned with animal production, and what might be called animal protection, have become associated to further the common cause.

At the same time, and as a part of the

Presented before the eightieth annual (War Conference) meeting of the American Veterinary Medical Association, St. Louis, Aug. 25-26, 1943.

Chairman, Division of Biology and Agriculture, National Research Council.

same movement, these five societies officially requested the National Research Council to establish a Committee on Animal Health. That has now been done under the chairmanship of Dr. George H. Hart of the University of California, with the following members: Doctors R. M. Bethke, J. G. Hardenbergh, C. C. Hastings, H. W. Jakeman and W. E. Petersen. The Committee met day before yesterday and bids fair to wield a large influence in the field. The AVMA differs from the other four societies in the Interassociation Council in that its members, like physicians, are largely independent practitioners in contrast to the members of the other associations who are early all employed by public institutions, such as the department of agriculture, state colleges and experiment stations.

The establishment of these new activities, and the emphasis of connections with these other national societies by veterinarians at this time, seem to me very full of meaning. They mean that veterinarians recognize an increasing responsibility to the public in addition to their responsibility to their clients. The practitioner has always—and rightly—considered that his responsibility was primarily curing the particular animals he was called to attend. I believe that these newer activities signify an increase in the responsibility that veterinarians are undertaking for the health of *all* food animals. Veterinarians in public employ and in private practice have done a magnificent job in reducing losses from infectious diseases such as tuberculosis. But they have not gone so far in assuring maximum efficiency of farm animals through preventive medicine, and especially through assuring good nutrition.

The present acute shortage of feed inescapably focuses attention on nutrition. As hangovers from the days of plenty, there are great wastes of feed in our present farm economy—wastes due to overfattening of hogs and steers for which price relationships have offered such a temptation. But perhaps the worst waste of feed is to spend it on an animal which dies without giving any return.

Another waste of feed, perhaps fully as great, is skimp feeding. A cut of 25 per cent in the feed of laying hens, in one instance, resulted in a drop of 52 per cent in egg production and of 87 per cent in the profit of the operation. Such results are so elementary and so familiar to you that it sounds foolish to repeat them here. Nevertheless, no one can travel far across this country of ours without seeing numbers of poor, scrawny, half-starved animals. Veterinarians, individually, have very little opportunity to do anything about such scrubs. It is not to attend such animals that the veterinarian is usually called. And individual practitioners never will be called for such animals. Yes, they are beyond your individual reach. But I believe that collectively through the AVMA, veterinarians can do a tremendous job of improving the livestock of our country. The scrubs which we all know too well are not only a challenge to you but a tremendous opportunity for you.

All this means a considerable change in the relation of veterinarians to the public. It will inevitably mean much greater public support for the services of veterinarians in caring for all animals. It will mean public provision for an increase in animal health comparable with the development of public health in medicine. And withal, you must realize that public health services are only beginning to develop, that the duties of the public health services, federal and state, are certainly going to increase very greatly.

There is before us a similar development of veterinary science which will bring with it greater usefulness and greater expansion for your profession than any of us can imagine. It would be wise for the elder statesmen among you to consider carefully the implication of the changes which are coming and to take measures, step by step, to profit by those changes as they develop.

I have said nothing directly about the subject which your secretary assigned to me, which is, "Fighting Wastage of Our Food Resources by Organized Research." And I am afraid that I cannot, at this time, say much. It is clear that any such growth in veterinary science that must lie ahead will require enormously increased research to support and to direct the practical applications that will come.

There is no occasion here and now to go into details as to that research. This brings

me, naturally, to the National Research Council's Committee on Animal Health. We all hope and believe that the Committee on Animal Health will become a potent force not only in summarizing, emphasizing and, in a sense, validating researches already done, but that it will become an important agency in stimulating new research as, standing on the forefront of the advance, it sees needs which should be met.

Rather than attempting to go further into the subject of research, which really belongs to the Committee itself, I prefer to outline to you the way the food problem looks to the National Research Council and the steps we are taking and hoping to take to deal with it. From where I sit in the Council, one of the greatest needs that appears in this crisis is to promote the unification of effort among all of us who are serving on the food front. And this belief of mine is the only basis on which I ventured to accept your invitation to speak here today.

The especial concern of the Council is indeed the effort to bring about greater correlation and coöperation among those who serve the food front in differing and specialized capacities. The specific measures which we are taking in this field are:

First, a Committee on Crop Protection made up of plant pathologists and entomologists which, in theory, closely parallels the committee on Animal Health. During a period of many months, after Congress had drastically cut appropriations for controlling fungus and insect pests, private committees of the National Societies, headed up in the Council's Committee on Crop Protection, organized and coördinated the efforts of the separate states, and stood guard against this menace. Happily, an emergency grant secured through the National Academy has restored the federal services. But our committee remains an active bulwark against disasters from plant diseases.

Second, the Committee on Animal Nutrition. It will not be news to this group when I say that the science of animal nutrition is in many ways more advanced than that of human nutrition. There is no need to point out that most of the advances in human nutrition have been made from experimentation on animals. This is so much the case that the War Food Administration has difficulty in arriving at decisions, and in



justifying them to the public, because the only information on which they have to base their decisions is derived from rats or guinea pigs.

But the science of animal nutrition, as practiced by agriculturalists, goes far beyond most of the experiments on rats and guinea pigs. The man who is producing farm animals cannot stop with ascertaining food requirements. He must determine optimum rations if he is to get the most for his feed dollar. Exactly what composition of laying mash will induce the highest number of eggs? Exactly what feed and how much will yield the greatest profits when turned into milk or into pork? Information of this sort which agriculturalists must obtain is capable of putting human nutrition on a far better basis than anything we now know. It is no secret that our animals are much better fed than we ourselves are.

I suppose it is known to all of you that the world leader in human nutrition, Sir John Orr, although originally a physician, founded the Rowett Institute for the study of animal nutrition because in that Institute he could do more about human nutrition than he could with human beings themselves. For the same reasons, veterinarians have an enormous opportunity to improve the practice of human medicine in many ways.

In the field of human nutrition, the National Research Council has established the Food and Nutrition Board which is made up of nutritionists, physicians, biochemists, agriculturalists, foundation executives and industrialists. This board is an official advisor to the War Food Administration and handles many difficult and delicate questions for them. It has sponsored the enrichment of bread, of flour and of corn meal, and is now working to make such enrichment compulsory in the interest of the health of our workers. It is advising the Quartermaster General regarding the composition of the various foods which go into army rations. It may be surprising to you to learn that, at times, the rations have been found inadequate for the soldier to do the work that is expected of him.

The Food and Nutrition Board is also carrying on large-scale experiments on human beings. One of these is at a state hospital, supported jointly by the Macy Foundation and by state funds, where we are studying the nutrition of patients of differ-

ent ages. There is a well-founded suspicion that a great deal of the premature senility which sends large numbers of people into public institutions is due to faulty nutrition, and that, if these people were properly fed, many of them could return and become useful and self-supporting members of society. This, I say, is a suspicion and we cannot yet prove it. We shall know more when the experiment is concluded.

The Food and Nutrition Board has just concluded but not yet thoroughly digested the data from an experiment on the nutrition of 1,300 war workers in a large airplane factory. Since the data are not yet statistically analyzed, I cannot comment on the results of this experiment further than to say that dietary surveys show clearly that these workers were not getting a proper diet and give ground for more than suspicion that our war workers generally are not well fed. Perhaps the one comment which I can properly make is that the factory, upon conclusion of the work, tried to hire the director of our experiment at a fabulous salary to continue such work in this plant. I am glad to tell you that he has remained a scientist and will continue similar experiments elsewhere. Our experiments have in fact convinced the War Production Board that the nutrition of war workers should be improved and they are planning to set up further and larger demonstration experiments applying to about 300,000 workers.

At the Council, we feel that the Committee on Animal Health, the Committee on Crop Protection, the Committee on Animal Nutrition, and the Food and Nutrition Board are not working as closely together as they ought to be, in spite of good feeling all around; consequently, the Council is considering the formation of a small overall committee composed of men of the highest competence who, looking at the whole food problem, will endeavor to stimulate and to find support for efforts in all of these lines along the whole food front.

Hitherto, we have been too much veterinarians or agriculturalists, plant pathologists or dairymen. It is time now that we look more and more to our common responsibilities as agents in producing the world's food.

I know that all of you share with me the belief that such coöperation and correlation of effort would be highly desirable. And I



am sure you will all join in every way possible to bring about a greater unity of action among the diverse agents who must operate in this vast field of efficient food production.

### Animal-Disease Situation in Australia

The "Livestock Disease Report" for 1942-1943 issued by the Division of Animal Husbandry, Department of Agriculture, dated at Sidney as of Dec. 30, 1943, is a condensed record of Australia's animal-disease problems.

It gives a peep into the bitter opposition Australian stockmen have raised against tick eradication, including the dynamiting of dipping vats and refusing to furnish cream to the factories. But the work proceeded, nevertheless, following the favorable report of a special board appointed by the government to make an investigation of the organized opposition which had been built up by stockmen. [The episode is comparable to the futile attempts which were made to stop tick eradication by violence in the United States.]

Although not serious, there is evidence that swine erysipelas is assuming epizootic form. . . . Swine brucellosis presents a difficult problem. . . . The demand for poultry products by the armed forces of Australia and their allies has turned attention to the health of fowl. . . . Pleuropneumonia of cattle exists in Queensland, and from there a few outbreaks are occasioned elsewhere. Heifers and cows shipped to the metropolitan dairies from infected areas are submitted to the complement fixation test. Results from this precautionary measure have been pronounced justified. Appropriate interstate regulations in respect to tick fever and other diseases are in force.

The Glenfield Veterinary Research Laboratory examined 22,899 specimens for diagnostic purposes during the year and made 18,525 serological tests. Owing to war conditions, these figures, except for poultry, are lower than during the previous year. . . . Great interest is shown in mineral deficiencies, mainly calcium and magnesium. . . . Two hundred fifty-eight specimens from outbreaks of hog cholera were submitted to the laboratory for diagnosis. . . . Arrangements were made to test the merits of calfhood vaccination against brucellosis on a dairy farm, and research on that control measure is being continued. . . . Sul-

fanilamide (udder infusion) in mastitis has given promising results in small scale trials. Entozon is not obtainable.

The subjects treated in the report are: sheep blowfly, toxemic jaundice, swine erysipelas, swine influenza, nutritional anemia of sheep, scabies, swine pox, swine pneumonia, brucellosis of swine and cattle, hog cholera, deficiency diseases, tuberculosis, pleuropneumonia of cattle, tick fever.

Except for bovine pleuropneumonia, of which we have none, the veterinary problems of Australia run parallel with our own. Although the struggle against this tenacious cattle plague (pleuropneumonia) in Australia is reported to be "comparatively satisfactory," its presence through many decades and the anxiety it continues to cause turns our minds back to the warnings of James Law of Cornell in 1879 when he emphasized the importance of stamping out the disease "before it reached to the large herds of the open range where it could never be eliminated." Every report of bovine pleuropneumonia on the open ranges of Australia, despite the alertness of its veterinary service, are echoes of that warning.

If, in the long run, man has a more powerful enemy than disease in his domestic animals, we know not what it is. Yet, strangely, the fighters of that enemy continue to be flanked and harassed by man himself.

### Keeping Out Foreign Plagues

Keeping animal plagues out of the United States is not only a matter of enforcing a rigid quarantine of imported animals. Official supervision of nonliving things is included in the vigilance: ship's garbage, ship compartments, cars, trucks, and premises that might be contaminated with hides, manure, and packing material. The absence of foreign animal plagues in this country as shown by the report of the U. S. Bureau of Animal Industry is proof that the steps taken are thorough.—*From The Kansas Stockman.*

"Telang" livers condemned for human use in the routine work of the meat-inspection service are recommended by Combes and Hart of the Wisconsin Agricultural Experiment Station for the feeding of mink.

# Home Cured Meat in Ethiopia and Baffin Island

E. V. WILCOX, Ph.D.

*Chevy Chase, Maryland*

IN A BOOK entitled, "Voyages en Abyssinie et en Nubie" by Henri Lebrun, published in 1861, I ran across an interesting account of a method for obtaining fresh beef while traveling through the tropical jungles. The method was first described by Robert Bruce in a report of his travels in 1770, and was verified by Nathaniel Pearce and Rouge Salt in 1805 and 1809. The following paragraphs are literally translated from the French original.

We met three travelers who were driving a cow before them. They wore black goat skins on the shoulders and carried spears and shields. Soon after we reached the bank of the river the soldiers seized their cow and threw her roughly upon the ground. One sat upon her neck grasping the horns, another tied the front feet. The third, who carried a knife, instead of cutting the cow's throat as I expected, sat astride her loin and made a large incision in the rump.

I had hoped the three men would sell a part of the animal to us, but our Abyssinians told me they had learned in conversation with the soldiers that they were not about to kill the cow and that they could not sell her because she did not belong to them in entirety.

My curiosity was aroused. I let my men proceed in advance. I noticed that the soldiers had two pieces from the thigh of the cow. I am not sure how they had done the cutting but they were very adroit at the operation. They laid the two pieces of meat on one of their shields. One of the soldiers kept hold of the horns of the animal while the others dressed the wound. This operation was not done in the ordinary manner. They had left the skin entire so as to cover the area from which the flesh was removed. They now sutured it together with slender wooden pins. I am not sure whether or not they inserted anything between the skin and the flesh, but they smeared the whole wound with mud, after which they prodded the cow into a standing position and drove her before them to furnish them another repast when they should join their comrades.

When Bruce recounted this episode to his friends they were incredulous, but he insisted upon its authenticity. In support of

The author is an honorary member of the AVMA.

Bruce, we may cite a passage from the travels of Pearce as reported by Salt.

Pearce set out with some soldiers of Lasta who were on a marauding expedition. In the course of the journey, they seized several cattle and brought them to the camp. The soldiers were famished and the distance still to go was long. One of them proposed to the others that they should cut the "shoulada" from one of the cows. Pearce was unfamiliar with that term but he was soon to learn what it signified. They seized the animal by the horns, threw it upon the ground, and cut two pieces weighing about a pound from the thigh. They then replaced the skin over the wound and covered it with cow dung.

The animal was then driven forward while they shared the pieces of meat. The animal walked a bit lamely but was quite able to reach the next camp ground. Salt adds that every mention of "shoulada" in Abyssinia was instantly understood.

At this late date, there seems to be little use in either discussing or questioning the feasibility of such a proceeding. Both mud and dung have been used as dressings for wounds under crude conditions.

How beneficial such treatment may be is doubtful. Unfortunately, the travel account leaves us without information on how many cuts could be taken from an animal and still expect the beast to follow along with the expedition. The whole carcass could hardly be utilized in such a peripatetic performance.

The very different system of home curing meat on Baffin Island was recently described by an Eskimo native of that island. In igloos, no cooking can be done since the ice would thereby be melted enough to drip and make them uninhabitable. Fresh meat is, therefore, left outdoors at temperatures below zero where it is frozen dry, or completely dehydrated. The Eskimos insist that the flavor of this frost cured meat is excellent, and that it is by no means the same as fresh raw meat. I have never had an opportunity to taste it and cannot vouch for its flavor, but from the experience of dehydrating meat of all kinds by artificial freezing for shipment abroad should come an authoritative answer to that question.

# Recent Observations on Parasites in Small Animals

F. R. KOUTZ, D.V.M., M.Sc.

Columbus, Ohio

RECENT OBSERVATIONS on parasites in dogs and cats have shown that we not only have the same well-known parasites and parasite problems year after year, but that we are continually facing new problems due either to the spread of parasites from old areas to new ones or to the more common occurrence of parasites once thought to be rare. It is easy to continue treating for the same parasites, without giving any thought to new ones nor recognizing new parasite problems until they become acute and must be controlled. Year after year, the same parasites recur and the practitioner is apt to overlook the problem of new parasites or to confuse them with the old ones unless he is very observing. During the past several years, we have observed the occurrence of new parasites which have become widespread and constitute quite a problem. Examples are the brown dog tick, *Rhipicephalus sanguineus*; the heartworm, *Dirofilaria immitis*; and, more recently, *Physaloptera* spp. in cats.

Dogs and cats brought into the clinic of the Ohio State University are regularly examined for both external and internal parasites. These examinations include routine fecal examinations, skin examinations for ticks, and, where indicated, skin examinations for mange and blood examinations for the microfilaria of the heartworm, *D. immitis*.

The direct flotation method is used in examining feces. Fecal material is collected in paraffined paper cups, either after the dog or cat is in the ward or from fecal material brought in with the patient. The fecal material in the cup is mixed thoroughly with saturated sodium nitrate solution, using about 5 parts of the solution to 1 part of fecal material. The mixture is strained through cheese cloth into a sterile beaker and then poured into a small flat-bottomed glass vial. The mixture can

be strained directly into the vial. Sufficient material is placed in the vial so that a slight meniscus is formed above the edge of the vial; a clean glass slide is placed on the top of the vial, so that the fluid adheres to its under surface. The slide is left on the vial for ten minutes, then lifted, turned quickly, and examined under the microscope for parasite ova. It has been found that a saturated sodium nitrate solution is far better for the rapid fecal flotation method than any other solution tested.

A number of practitioners have followed the practice of preparing fecal samples in the evening and conducting the examination for ova the following morning. Numerous inquiries have been received concerning the efficiency of their method as compared with the ten-minute direct flotation method. Recently, we conducted an experiment to determine the optimum time for removing the slide to obtain the best results, both as to diagnostic value and the number of parasite ova present. The tests were made after a lapse of five, ten, fifteen, and thirty minutes, and after two, six, and twenty-four hours. It was found that the greatest number of ova were counted when the slide was removed after ten to fifteen minutes. After standing twenty-four hours, most of the solutions that had a fairly high ova count at ten minutes were negative or contained but few ova. In some cases, where only a few ova were found at ten minutes, none were observed after a period of six hours. In cases where there had been numerous ova (3,000 or more per slide) at ten minutes, there were still many ova present after twenty-four hours, but few in number as compared to the ten-minute flotation. In these cases, great numbers were found in the contents at the bottom of the vial, many of them ruptured. Using the direct flotation method, it is possible for the practitioner to mix the fecal sample before the physical examination of the animal and then remove the slide at the completion of the examination to see if the animal has parasites. In this way, he can save a great deal of time and

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have a maximum of efficiency in the diagnosis of parasites.

During the past several years, records have been kept of the results of fecal examinations in dogs and cats. It has been found that the numbers of positive and negative fecal examinations do not vary much from year to year. For instance, in 1941, of a total number of 1,486 dogs there was an incidence of parasite infection of 53.97 per cent, while in 1942, of a total of 1,576 dogs, there was an incidence of 54.06 per cent. The incidence of parasitism in cats, as in dogs, showed a close parallel. The parasite infection in cats during 1941 was 44.57 per cent, while in 1942, there was an incidence of 43.75 per cent. These examinations were from dogs and cats brought to the clinic from the farm and the city. This would be the type of patient presented at many small animal hospitals. In fecal examinations from dogs that were used in experimental work, we found the incidence of parasite infection much higher than in house dogs—as high as 85 to 90 per cent. It is also interesting to note the types of parasites that occur from year to year in dogs, as well as the close parallel in the percentage of parasite infection. In the years for which our records were checked, we found *Trichuris vulpis* to be the most common, *Toxocara canis* and *Toxascaris leonina* next in prevalence, and *Ancylostoma caninum* third.

Prior to 1940, saturated sodium chloride solution was used as a flotation medium; but since that time, saturated sodium nitrate solution, which has a specific gravity of 1.400, has been used. With sodium nitrate solution, there was an increase in the number of cases identified as *T. vulpis*, the ova of which are heavy and do not float well in solutions having a low specific gravity, such as sodium chloride. In 1941, the incidence of parasite infection with *T. vulpis* was 25.57 per cent; in 1942, in practically the same number of cases, the incidence was 26.84 per cent. The next highest in number were the ascarids, with an incidence of 21.34 per cent in 1941, and 21.44 per cent in 1942. Following the *T. vulpis* and ascarids were the *A. caninum*, which had an incidence of 17.22 per cent in 1941 and 20.43 per cent in 1942.

It is interesting to note the combinations of parasites that occur most frequently in dogs. A combination of *A. caninum* and

*T. vulpis* has been found in 15 per cent of cases; *A. caninum* and ascarids (*T. canis* and *T. leonina*) in 7 per cent of cases; and *T. vulpis* and ascarids in 8 per cent of cases. A combination of *A. caninum*, *T. vulpis*, and ascarids was observed in 2 per cent of the cases.

*Diocotophyme renalis*, the kidney worm, was diagnosed in three dogs during the past year. This parasite, the largest nematode known, occurs in the kidney and abdominal cavity of dogs and other animals. It is a comparatively rare parasite in Ohio. The barrel-shaped, pitted ova of this parasite were first observed during a routine fecal examination. After a thorough examination and check of the ova under the high power of the microscope, these ova were diagnosed as those of *D. renalis* and were thought to be a contamination from the urine of the dog. A check of the urine by the sedimentation method verified the diagnosis and revealed many thousands of ova of *D. renalis*. A further check on the fecal sample submitted revealed that it had been collected from paper in a kennel and had evidently been contaminated with urine. There were two other cases from the same locality which, on examination of both the feces and urine, showed the ova of *D. renalis*.

Another parasite in dogs that has been found occasionally in the last several years, which had not been reported from Ohio, is that of a fluke, one of the *Alaria* spp. Hall and Wigdor,<sup>1</sup> in 1918, reported on several species of this parasite in Michigan. The adult parasite lives in the small intestine. The ova of these parasites were found in three clinical cases during 1942, and in one case during 1941. In none of these cases was it possible to perform an autopsy and recover the parasite. In one case, after a routine treatment with nicotine bentonite compound for *T. vulpis*, no more of these *Alaria* ova were found, although they had been regularly present in large numbers prior to the treatment. There had been a constant diarrhea previous to treatment, following which the stool became normal.

*Diphyllbothrium latum*, the broad tapeworm of the dog, was diagnosed several times during the past several years. This tapeworm occurs in the small intestine of

<sup>1</sup>Hall, Maurice C., and Wigdor, Meyer: Two New Flukes from the Dog. J.A.V.M.A., 55, (1918): 616-626.



dogs, cats, and other fish-eating animals. The ova are passed in the fecal material and develop several weeks before hatching into a coracidium, which in turn is ingested by a crustacean, a copepod. In the copepod, the larval stage, a proceroid develops in from two to three weeks. When the infective copepod is swallowed by a fish, the larval form migrates to the muscles and other organs and develops into a plerocercoid. The dog or other final host becomes infected by eating the raw fish containing the plerocercoid. These cases were diagnosed by finding the ova with the direct fecal flotation method; the adult parasites were recovered after administration of nemural. A check of the history revealed that these dogs had come from the lake regions, so presumably they had access to raw fish. Examination of the stool after treatment failed to reveal any more ova. This parasite is not common in Ohio, but the three cases in the last year reveal that it might become quite prevalent around the lake regions, or in regions where dogs are fed raw or partially cooked fish. This parasite also occurs in man, and dogs, by harboring it, may spread the infection to man.

*D. immitis*, commonly known as the heartworm, has become increasingly prevalent during the past six or seven years. Up until eight years ago, there were no cases reported in Ohio; the first case in our clinic was found in the spring of 1934. Each year, there have been a few more cases than the year before. Examinations are made of suspected dogs by drawing blood into sterile vials, which are taken to the laboratory and allowed to stand over night so that the serum separates from the cells. Drops of serum are removed with a medicine dropper, placed on a slide, covered with a coverslip, and examined under the microscope. If no *Microfilaria* is found, the remainder of the serum is placed in a centrifuge tube, a small amount of distilled water added, and centrifuged for three minutes. The material at the bottom of the tube is removed with a capillary pipette, placed on a slide, and examined under the microscope. Four slides are examined directly from the serum and a like number after centrifuging. The policy at the Ohio State University has been to examine the blood of all hunting dogs brought to the clinic, the blood of all dogs having a chronic cough, all dogs from the South, and those

that have a nonspecific dermatitis. Treatment consists in the use of either Fuadin, Stibsol, or Filsol.

Every precaution is taken to prevent the brown dog tick, *R. sanguineus*, from establishing itself in our hospital. All dogs brought in are examined carefully for any of these parasites. If ticks are found on the patient, they are removed and sent to the laboratory for identification of the species. During the past several years, this parasite has been increasing in prevalence and becomes quite a nuisance and problem when it establishes itself in a hospital, and a worse nuisance if it becomes established in the home. By careful examination of the dogs, and by isolating in a special ward those found with ticks, it has been possible to keep ticks from becoming established. This is one of the parasites that, until several years ago, was unknown in Ohio, but which has now become permanently established. There have been cases reported from all parts of the state. These have been spread chiefly from dogs coming from the South, and by dogs being placed in infected hospitals or homes and carrying the parasites to new locations.

During the spring of 1942, there occurred an increasing number of cases of *Dermacentor variabilis*, the wood tick. This parasite is found on dogs brought into the clinic and is also picked from dogs by the owners and brought into the laboratory for identification. People are becoming quite conscious of these ticks on dogs, because of the increased literature available to the public on Rocky Mountain spotted fever, and because of the rôle the ticks, such as *D. variabilis*, play in its spread. This tick, is probably no more prevalent at this time than in other years but is being noticed more now because of the general interest in the dangers from the transmission of Rocky Mountain spotted fever.

Another external parasite observed this year has been *Heterodoxus longitarsus*, a biting louse, that had not been reported from this state. Two other species of lice, *Trichodectes canis*, a biting louse, and *Linognathus piliferus*, a sucking louse, are very common. *H. longitarsus* is comparatively rare in this country, having been only reported a few times. This parasite is long, thin, and moves very rapidly through the hair of the dog. It may be noted that this parasite is supposed to be

restricted to the kangaroo, so the report and spread of this species is interesting.

In the use of anthelmintics, some drugs are found to be much more effective than others against certain combinations of species of parasites. During the past year, K. W. Smith of Colorado State College, who was engaged in graduate study in our department, found that nicotine bentonite compound pellets (a formula prepared by H. M. Corenzwit, Philadelphia, Pa.) was effective in the removal of *T. vulpis*. He also found that the drug was effective against *A. caninum*, which makes it an ideal anthelmintic in infections with a combination of these two species.

Where there is a combination of ascarids and *A. caninum*, tetrachlorethylene is used. This drug is effective in removing both of these parasites. The dosage rate is 0.1 cc. per lb. of body weight, followed in two hours with magnesium sulfate.

Oil of chenopodium compound has been found effective against ascarids in dogs. This compound consists of:

Oil of chenopodium	16 cc.
Oil of anise	30 cc.
Oil of turpentine	14 cc.
Castor oil	q.s. 1000 cc.

This is given at the dose rate of 1.5 cc. per lb. of body weight.

In treating for tapeworms (*Taenia pisi-formis*, *Taenia taeniaeformis*, *Dipylidium caninum*, and *D. latum*) nemural is used at the dose rate of 1 tablet (18 mg.) per 8 lb. of body weight. This drug has been found to be very effective, with an efficiency of 90 to 95 per cent.

Cats that are admitted to the clinic receive the same examination as dogs. Routine fecal, skin, and other parasite examinations are made as indicated. During the past several years, ascarids (*Toxocara mystax* and *T. leonina*) were found to be the most prevalent parasites in cats. Fecal reports from year to year show that the ascarids had the highest incidence of infection. During 1941, there was an incidence of 37.35 per cent, while in 1942 the incidence was 34.35 per cent. *A. caninum*, second in number, had an infection rate of 6.02 per cent in 1941, while in 1942 the rate was 7.81 per cent. *Trichuris campanula*, third in prevalence, had an infection rate, in 1941, of 2.41 per cent, while in 1942 there was an infection rate of 7.81

per cent. These records show, as in dogs, that there is a very close parallel of infection each year.

During the past several years there has been an increasing prevalence of *Physaloptera* spp. in cats, such as *Physaloptera felidis*, and *Physaloptera praeputialis*. Last year the ova of this parasite were found in 6.25 per cent of the fecal samples taken from cats. About 10 cases of this parasite were found *post mortem*. The adult worm is found in the mucosa of the stomach and sometimes the duodenum. *Physaloptera* spp. belong to the order Spiruroidea and are somewhat similar in shape and color to immature ascarids, only being smaller and usually coiled after they are removed. There have been several cases of cats brought into the clinic with the report that they had vomited ascarids, even after they had been recently treated for this parasite. Upon examination of these specimens, it was found that, after clearing the parasites in 95 per cent phenol and examining them under the microscope, they were *Physaloptera* spp. instead of ascarids.

The life cycle of this parasite is not known. Treatment with tetrachlorethylene has been only partially successful. This is one of the parasites that is increasing in this area, for we have had many reports of its occurrence on postmortem examination.

In treatment for other types of parasites in cats, such as ascarids and *A. caninum*, tetrachlorethylene at the dosage rate of 0.1 cc. per lb. of body weight is quite effective.

#### SUMMARY

Recent observations on parasites in dogs and cats show that besides the well-known parasite problems, new ones are being continually encountered.

The 10-minute direct flotation method, using saturated sodium nitrate solution, for the detection of parasite ova gives the best results, both as to the number of ova obtained and diagnostic value. After 10 to 15 minutes the number of ova steadily decline in number.

Records kept during the past several years have shown that the number of positive and negative fecal examinations for parasites does not vary much from year to year.

*Trichuris vulpis* was found to be the most

prevalent parasite; the number of cases of this parasite varied only slightly in percentage during the years the records were checked. The other species such as *Ancylostoma caninum*, *Toxocara canis*, and *Toxascaris leonina* showed very little change in the percentage of infection from year to year.

Mention is made of new or rare parasites found in Ohio during the past several years. Among these in dogs are *Doctophyme renalis* (kidney worm), *Alaria* spp. (a fluke), *Diphylllobothrium latum* (broad tapeworm), *Dirofilaria immitis* (heartworm), *Rhipicephalus sanguineus* (brown dog tick), *Dermacentor variabilis* (wood tick), *Heterodoxus longitarsus* (biting louse) and in cats, *Physaloptera felidis* and *Physaloptera praeputialis*.

Where two or more species of parasites are present certain anthelmintics have been found to be equally effective. Nicotine bentonite compound pellets have been found effective against *T. vulpis* and *Ancylostoma caninum*. Tetrachlorethylene is effective against ascarids and *A. caninum*. Oil of chenopodium compound is commonly used in the treatment for ascarids. Other treatments for parasites in dogs and cats are discussed.

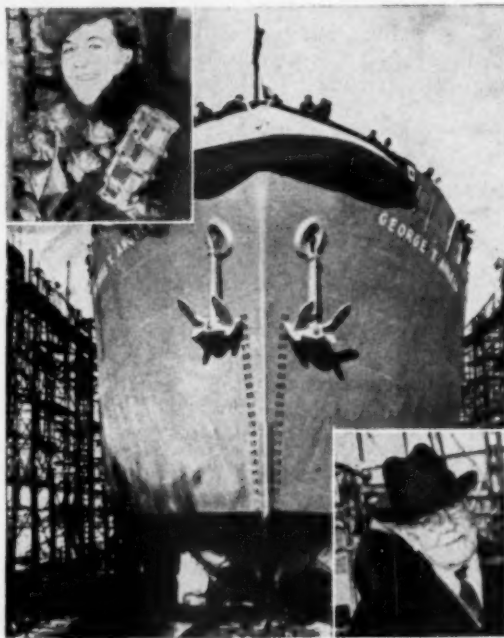
### Soil Fertility

Preserving the fertility of the soil is the liveliest question now discussed in the agricultural press. A right-about-face course away from land mining is the order of the day. "Enrich the Earth," "Most Soil Can Be Enriched," "Abandoned Farms Are a Disgrace," "Poor Soil Needs Livestock," are examples of current headlines. The *Southern Agriculturist* tells the story of a Swiss community in Tennessee, settled seventy years ago, that kept its farms in a high state of productivity with stable manure and commercial fertilizer. Result up to 1944: big barns, good shelter for feed and stock, big crops, and increasingly fertile land. The days of taking away and putting nothing back are gone forever among thoughtful farmers.

Machinery to freeze food in two to four minutes is one of the inventions of the war. The usual time was eighteen to seventy-two hours.

### Civilization Cracking Up?

Not as long as man will pause in the midst of a great war to pay tribute to the humane care of animals. Proof was the launching of the S.S. George T. Angell, 10,000 ton Liberty ship christened in honor of the founder of the Angell Memorial Animal Hospital of Boston, and the Massachusetts S. P. C. A. The building of the fa-



—From Our Dumb Animals

S.S. Liberty Ship George T. Angell, Built in Honor of Its Namesake

Insets: Miss Theodora Jones and Dr. Francis H. Rowley

mous ship was sponsored by Miss Theodora Jones, grandniece of the honored advocate of fair play for man's animal possessions. The launching ceremony at South Portland was attended by distinguished representatives of humane organizations. Dr. Francis H. Rowley, through whose foresight and effort the Angell memorial was erected, presented a framed portrait of Mr. Angell to the steamship company that the name of George T. Angell and the message he left on kindness may never perish.

Despite the restrictions of the greatest of all wars, the health of the British people has improved, according to the London correspondent of the *Journal of the American Medical Association*.



## Notes on Animal Parasites in the Upper Apure Region of Venezuela

LOCATED approximately between the 8° and 10° parallels, north latitude, the region of the Upper Apure River in the southwestern part of Venezuela has a tropical climate. It is formed of immense plains called "llanos" which extend along the left bank

perature is around 40 C. (104 F.). The rainfall is characterized by two abrupt changes: A season of rain which commences in May-June, lasting five to six months during which the annual precipitation ranges from 1.5 to 2.5 meters (4.92 to



—After R. Flasjon, 1943.

Region Referred to Marked with Diagonal Lines.

Legends: Mer Caraïbe = Caribbean Sea; Colombie = Columbia; Bresil = Brazil; Ciudad Bolívar = City of Bolívar.

of the Orenique River between the Apure and the Meta (*see* fig. 1). The mean temperature is 28 to 30 C. (82.4 to 86.0 F.). During the hot season the maximum tem-

8.2 ft.). The Orenique and its tributaries overflow and inundate the region. As the flood recedes, it leaves a layer of silt (limon) that enriches the soil. The submersion lasts two to three months, followed by the dry season, sometimes exceptionally pronounced, the rest of the year. In the Upper Apure region, it is not rare to see the dry season last until July.

\*Introductory remarks of an article entitled, *Notes sur les parasites animaux du Haut-Apure* (Venezuela) by R. Flasjon (Notes on the Animal Parasites of the Upper Apure). Translated from *Revue des Sciences Médicales, Pharmaceutique et Vétérinaires*, 2, (March, 1943): 125-151.



The human population is sparse and weak on the "llanos." The farms are scattered and frequently far apart. Some of them have pastures 200 to 300 kilometers (160 to 250 mi.) long. South of the Arauca, the population is more rare, and between the Capanaparo and the Meta, one meets only Indian tribes, some of which are still too hostile to penetrate.

Where animal production is not extensive, the most primitive methods prevail, despite efforts of the Minister of Agriculture. Herds of horses and cattle live permanently at complete liberty, almost in a wild state. The "llanero" who, like the *gaucho*, spends much of his time on horseback, only approaches these animals to capture and train a new mount, to brand the herds, or to castrate the bulls destined for the market. Nevertheless, in the absence of epizootics, these animals multiply so rapidly that the Apure is richer in animals than all the rest of the Republic. In 1929, the region had approximately 670,000 head in a total of 2,500,000 for the entire country.

The "llanos", inundated during a part of the year, are infested with vulnerary Arthropoda (mosquitos) which are particularly abundant at the beginning and toward the end of the rainy season. At the end of the winter season, along the banks of the water courses at dawn innumerable swarms of mosquitos fill the sky with a loud humming noise. In the daytime, before and after the hottest hours, the mosquitos of the genus *Simuliidae* become red skinned from sucking blood. If one ventures into forests, clouds of *Culicidae* cover the exposed parts of one's body like a carpet of dark gauze. If one rides on the immense prairies in June and July, thick swarms of *Chrysopa* (mosquitos) rise up and rush at the head and neck of the horse, and face and hands of the rider, where they quickly raise a veritable "sweat of blood." In the shade of the forests, along the rivers, or in the sun on the prairies, the animals and all denuded parts of the human body are virtually obscured by thousands of diurnal attacking mosquitos.

In the dry season, these assailants reproduce. The ticks (*Garapata*) lie in ambush in branches and grass. Their tiny larvae, nymphs and adults of the *Amblyomma cajennense* drop to the ground, crawl about,

and reënforce their roster. Nowhere in the world does nature seem as prodigious for the pleasure of the entomologist as in tropical South America. It is just to add, however, that vulnerary insects recede with the coming of civilization. Though difficult to say why, it is undeniable that along the borders of the deserted prairies of the Capanaparo, the parasites are less numerous around the small farms which courageous farmers have created in recent years. The parasites studied successively were Protozoa, helminths, and Arthropoda.

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### Our Aim

Dr. I. S. McAdory, of the API, tells the readers of *Southern Agriculturist* that "Tuberculosis, brucellosis, and mastitis endanger animal and human health and the aim should be to supply milk from healthy, well-fed cows receiving good care and kept in a clean and sanitary environment and their milk protected from contamination until it reaches the consumer." Could anyone say more in that many words?

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### Rehabilitation of Europe's Livestock

In so far as the food-producing animals are concerned, the prediction that the livestock of Europe will have to be rehabilitated by our animal industry is counting the chickens before they are hatched—wishful thinking, O. E. Reed, chief of the U. S. Bureau of Dairy Industry, calls it in *Hoard's Dairyman*, after piecing together such facts as he is able to collect. In any event, besides the decline in the number of animals and food poundage, blood lines of breeding stock may enter the picture to the dismay of the American seller. Better blood lines have always traveled in the opposite direction.

So far as Thoroughbred horses enter the prospect, that should be left out. There isn't a single American bred horse that would be eligible for the General Stud Book of England, if we understand what *The Thoroughbred Record* has to say on the dream of rehabilitating the English race horse. We still have hit-or-miss breeding practices to reform and a lot of scrub sires to eliminate before starting to rebuild the livestock of Europe.

# Poultry Meat Inspection

EDWARD M. LYNN, D.V.M.

Chicago, Illinois

TO UNDERSTAND the poultry-meat situation one starts with the customary classification of market fowl: *live* poultry, *dressed* poultry, *drawn* poultry, and *eviscerated* poultry. "Live poultry" is self-defined. "Dressed poultry" is the familiar whole fowl carcass of the market—feathers removed but otherwise intact. "Drawn poultry" of the American meat market is the fowl carcass from which the so-called internal organs, head, shanks, and crop have been removed. It is a class of poultry that is offered for sale without an inkling of expert supervision at the time of evisceration, or as to its handling thereafter, in violation of the established principles of meat inspection as a public health measure. "Eviscerated poultry" is defined as the carcass of fowl subjected to critical examination under specified federal regulations at the time of evisceration, and destined to be cooked or frozen solid immediately or almost immediately thereafter.

It is clear that drawn poultry and eviscerated poultry as defined in official documents should not long escape the attention of watchful hygienists. They concern every home in the land and also the welfare of the whole poultry-raising industry. At this stage of food-inspection development in this country, complete sanitary supervision of live and dressed poultry found in the markets is too remote a prospect to be discussed in this paper. Except for regulations enforced by certain municipalities with the object of removing manifestly unwholesome dressed poultry from the local market, poultry-meat inspection, as of this day, is limited to the small percentage of the total poultry poundage that passes through the hands of the few eviscerating plants which maintain an approved veterinary meat-inspection service under government supervision in order to meet the higher standards of excellence in soups, canned poultry meat, and eviscerated poultry for freezing. This service is conducted by graduate veterinarians working under the direction of Henry G. Hamann

of the Dairy and Poultry Division of the Office of Distribution of the United States Department of Agriculture. Dr. B. C. Pier, Washington, D. C., designated as chief of poultry inspection, is in charge of the veterinary personnel, which numbers approximately 100. Dr. H. A. Weckler, designated as assistant national supervisor, is in charge of the Great Lakes region and adjacent territory, where most of the larger eviscerating plants are located. The firms engaged in promoting this hygienic enterprise in the Chicago region are:

Campbell Soup Company  
Charles Keeshin, Inc.  
Chicago-Western Corporation  
College Inn Food Products Company  
D. Horwitz & Company  
Libby, McNeil & Libby  
The Peter Fox Sons Company  
Polo Produce Company

There are approximately 65 other plants under similar inspection scattered from coast to coast. The Baby Food Division of Libby, McNeil & Libby, located in a suburb of Chicago, is an example of the value placed on this type of poultry-meat inspection in the production of food requiring meticulous attention to every detail. Poultry showing the following disease conditions are removed from the market by this service:

Tuberculosis	Abscesses
Emaciation	Parasites
Septicemia	Putrefaction
Leucosis	Contusions
Peritonitis	Cadavers
	Tumors

To these may be added such lesions as a trained veterinary inspector would naturally select as causes for condemning a meat. The service includes sanitary supervision of the plant and its personnel, cleanliness of the inspected carcass before packing, and disposal of rejected material, all without overlooking any undesirable factor. It is not an exaggeration to say that the veterinarians engaged in this special service are governed by the plant's desire to produce food of high quality, and fall

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in with the spirit of their responsibility. A weak spot in this service is the relatively small percentage of the total poultry-meat poundage subjected to this critical supervision.

Although the accurate poundage of poultry consumed annually in this country is not available, it is conservative to set the figure at 1,755,000,000 pounds. This figure we base arbitrarily on an estimated poultry population of half a billion and at the low average weight (for making comparison) of 3 1/2 pounds per head. Inaccurate as these figures may be, they are intended only for comparison with the small poundage of properly inspected eviscerated poultry, the quantity of which was around 180,000,000 pounds in 1943, according to Dr. Pier, chief of the service, who furnishes the following data for the first six months of that year:

Months	Pounds inspected	Pounds rejected
January .....	11,883,605	102,622
February .....	9,207,831	106,938
March .....	10,384,071	104,963
April .....	6,743,218	59,736
May .....	6,048,389	61,426
June .....	6,415,939	62,621
Totals .....	50,683,053	498,306

The figures for the second half of the year are always larger.

One has but to multiply these figures by two to note that out of the 1,755,000,000 pounds of poultry meat consumed yearly, only around 100,000,000 pounds were subjected to the type of examination the food-consuming public should be enjoying. That is, the American public consumes 1,655,000,000 pounds of uninspected poultry. Considering that poultry, especially chickens, have a high morbidity and mortality, these data are worthy of attention in developing a food-inspection service such as health officers would desire. We are aware that the retail price of eviscerated poultry subjected to this critical inspection is somewhat higher than that of other classes of market poultry. But since the head, part of the neck, feet, shanks, crop, entrails, lungs, kidneys, trachea, esophagus, etc., are removed and the nutritive value is higher, the price differential is not startling. Note in cents per pound as of January, 1944, in Chicago:

Class	Eviscerated	Drawn	Dressed
Fryers and broilers	51.5	45.5	35.0
Roasters .....	48.5	43.5	35.0
Fowl (stewers)....	43.0	39.0	31.0
Roosters (old)....	37.0	33.0	26.5

The importance of these figures from the veterinarian's point of view lies in the slight difference between the insanitary, drawn poultry and the sanitary, absolutely disease-free eviscerated class. As to the *dressed* column of the table, the carcass is of unknown salubrity and contains the waste portions previously mentioned that have to be removed before cooking.

The Office of Distribution has worked out an excellent technique for guidance of the veterinary poultry inspector and strict regulations on grading which protect the buyer against fraud and careless practices.

After years of experience in the wholesale and retail meat trade, close contact with the federal meat-inspection service in the large abattoirs of Chicago, and a fling into poultry inspection in eviscerating plants operating on a large scale, I am convinced that the expansion of all phases of food inspection is a worth-while project for the AVMA to promote. The removal of unwholesome and substandard food from the market on a large scale should not be an impossible task, in view of the achievements of the Veterinary Corps during the last and the present wars and those of the small group of 100 veterinarians engaged in the eviscerating plants.

[Note: The technique of poultry inspection practiced in the Army is described by a veterinary officer elsewhere in this issue.—Editor.]

### Passing of the Dog

Come war and rationing and priorities and shortage, 'twas popular to jump at the conclusion that dogs were on their way to a kennel, not made with hands eternal, in the heavens. But what happened? More dogs than ever, more kinds of dogs, war dogs, and everyone wants a dog. And why not? The dog has been here a long while and will probably be the only mourner when the last hombre hits the long trail, because the dog is what he is.—Uncle I. N. Cog.

It is a pleasure to read the veterinary columns of the farm papers and, moreover, they give a good account of the distribution of farm-animal diseases.



# Army Inspection of Eviscerated Poultry

LIEUT. ROBERT E. SAVAGE, V.C., A.U.S.

*Fort Knox, Kentucky*

JUST AS GOOD bullets are vital for effective prosecution of the war, so is good, wholesome, palatable food. Perishable food products prepared for consumption by our armed forces are given a thorough inspection at the point of origin, and again at the final destination by personnel of the Army Veterinary Corps. Eviscerated poultry is one of the many perishable products so inspected.

Eviscerated poultry means dressed poultry, fresh killed, from which the viscera, head, and feet have been wholly removed. The carcass, heart, liver, and gizzard are subjected to a thorough cleansing process. The split or dismembered carcass with the giblets is then packaged and fast frozen at low temperatures.

Under army specifications an FDA veterinarian or an army veterinarian must conduct a postmortem inspection of each carcass at the time of evisceration; if the carcass is passed, it is accepted on army contracts.

Poultry dressing plants producing eviscerated poultry are at the present time comparatively few in number. However, with an increasing demand for eviscerated poultry, many poultry dressing plants are now endeavoring to include the eviscerating process in their systems. Because of a shortage of materials with which to build new equipment for the evisceration process, American industrial ingenuity has rebuilt and readapted old equipment for this process. Very favorable results have been achieved in many instances.

## MODERN EVISCERATION METHODS

The outmoded, outdated style of poultry evisceration of a decade ago has given way to new, efficient, modern methods which produces a better product in a shorter period of time at a lower cost.

The "on-the-line" evisceration method is conducted on two separate, continuous, moving, overhead conveyor lines that carry the carcass and viscera past the workers throughout the evisceration process. Running water and waste containers are placed at appropriate intervals along the lines.

The carcass is suspended from the first line by either the feet or neck. The second conveyor line is equipped with pans to carry the viscera and is synchronized and parallel with the first line carrying the carcasses. Thus the carcass and viscera are kept together during the inspection process.

Another modern evisceration method employs the use of an automatic evisceration table. This table is equipped with running water, waste containers and a moving, continuous conveyor type top. The top consists of a series of pans approximately 2 1/2 feet long, 2 feet wide and 4 inches deep, placed side by side and fastened to a continuous, moving, power driven conveyor belt. One poultry carcass with its viscera is placed in each pan and is carried along the top of the table past the workers doing the eviscerating; thus the carcass and viscera are kept together during the inspection process by the veterinarian as in the preceding method.

A preliminary process in which the bird is killed, properly bled out, plucked, and chilled precedes the evisceration process. Fresh killed carcasses are usually chilled at temperatures of 36 to 45 F. and eviscerated within forty-eight hours after slaughter. This chill period removes the body heat and allows the internal abdominal fat to harden; this in turn facilitates greater efficiency and ease in removal of the viscera during the evisceration process. These two processes may be in direct sequence or separated by a period of hours, depending upon the policy of the packing plant. The fundamental operations of the modern evisceration process are as follows:

The carcass is placed on the conveyor line, and the head removed. At this point, the legs are cut off at the hock joint in the automatic table-type evisceration method. As the carcass moves along the line, the abdomen is opened. In the table-type method, the dorsal skin of the neck is incised from the distal portion of the neck to its proximity with the body. In the "on-the-line" evisceration method, the skin covering the ventral portion of the neck is incised from the throat to the thoracic inlet. In both methods, this incision facilitates the removal of the crop, esophagus, and trachea. The oil

gland at the dorsal base of the tail is removed, followed by removal of the vent.

The viscera are removed and placed in the pans for inspection with the carcass. Each worker removing viscera washes his hands in clean, running water before removing the viscera from other carcasses. Each carcass and its viscera are carefully inspected by a veterinarian. Carcasses and corresponding viscera which show lesions of tuberculosis, leucosis, peritonitis, septicemia, tumors, icterus, abscesses, parasites, emaciation, decomposition, bruising, or is cadaverous, and shows other abnormal or pathological conditions which may cause the carcass or viscera to be unfit for human consumption are condemned, removed from the line, and properly destroyed.

The heart, liver, and gizzard are considered edible and are processed as follows: The gall bladder and any accompanying bile stains are removed from the liver; the large, attached vessels are removed from the heart; the proventriculus and portion of the duodenum attached to the gizzard are removed; the gizzard is opened, and the contents and lining are removed; the neck is removed from the carcass. The liver, heart, gizzard, and neck are all thoroughly washed and placed in clean trays to await packing with the carcasses.

Meanwhile, as the carcass continues on the line, the trachea, lungs, and kidneys are removed. Any feathers or pin feathers missed in plucking are removed at this point. The legs are now cut off at the hock joint in the "on-the-line" method. In both methods, the carcass is given a final cleansing, externally and internally, with clean water. The carcasses are removed from the conveyor line and the soiled, empty pans travel to a washing chamber where they undergo a thorough washing in clean water followed by applications of live steam before they are again used to convey carcasses and viscera.

The eviscerated carcasses and giblets for army contract are inspected by army veterinary personnel to see that they are thoroughly clean. The carcasses and giblets are then graded, packed, and fast frozen at low temperatures under the supervision of an army veterinary inspector.

#### SANITATION

One of the important functions and duties of the Veterinary Corps is to safeguard the food supply for the armed forces. Each veterinary inspector is, so to speak, a food policeman helping to safeguard the health and fighting efficiency of our armed forces by helping to prevent possible disease which might result from the consumption of improperly prepared or contaminated food. It is, therefore, important for each inspector to inspect thoroughly the

processing and preparation of food products destined for the armed forces.

Eviscerated poultry products must be produced in sanitary surroundings by healthy workmen using clean, sanitary equipment. It is the duty of each army veterinary inspector to enforce sanitary measures in preparing and handling eviscerated poultry in the plant in which he is stationed.

#### GRADING

The carcasses of chickens, turkeys, ducks, geese, and guinea-fowl are graded according to age, sex, weight, amount of fleshing, dressing defects, and deformities as prescribed in the tentative U. S. standard grades and federal specifications for dressed poultry.

With minor exceptions and variations, mainly due to age, sex, and weight, the eviscerated carcasses of all species of poultry are graded in the same way. Therefore, in this article the grading of eviscerated chicken carcasses is used as an example of grading, eviscerated poultry carcasses in general. The grades are prescribed as follows:

*U. S. Grade A Prime* consists of a fine-grained, soft-meated bird with a well-fleshed breast. The carcass must have an appropriate amount of fat for the type and grade and have soft, glossy skin. It must be well bled, well dressed and practically free of pin feathers. No flesh bruises or abrasions, and only slight skin bruises scuffs or discolorations are permitted, none of which may be on the breast. No crooked breasts or other deformities are allowed. Broken wings above the wing tips or broken legs are not permitted. The bird must be dry picked or semiscalded, and dry packed. The carcass must be thoroughly chilled at 36 to 45F, immediately after slaughter. The carcass after chilling must be eviscerated not later than forty-eight hours from the time of slaughter. The head, feet, shanks below the hock joint, crop, lungs, kidneys, trachea, entrails and oil bag are removed in accordance with the best commercial practice; body hairs must be removed by singeing or picking. The body cavity must be washed in clean, running water and dried. Giblets (heart, gizzard and liver) must be cleaned, washed in clean, running water, thoroughly dried, wrapped in nonabsorbent paper and placed in the body cavity, or delivered in a separate, sanitary package with the order. After grading and packing, the eviscerated carcasses are frozen at low temperatures. The container must be plainly marked to show the date of slaughter, and no carcass may be accepted if it has been slaughtered more than ten months prior to the date of delivery. The carcass must be solidly frozen at the time of delivery; it must not have been refrozen. It must show no stain, discoloration, or evidence

of contamination or deterioration and must otherwise be in prime condition. No individual package of this grade shall contain more chickens, which fail to qualify as prime, than in the proportion of 2 to each 12.

*Grade B Choice* consists of a soft-meated bird with a fairly well-fleshed breast. The carcass must show an appropriate amount of fat for the type and grade. It must be fairly well bled and dressed, and may show few scattered pin feathers over the entire carcass. Slight flesh or skin bruises, abrasions, or discolorations are permitted, but not more than three such defects per bird. Abrasions or tears over 2 inches in diameter are not allowed, except on the back or wings, unless they are properly sewed. Dented or slightly crooked breast bones or other slight deformities are permitted. One broken wing or broken leg in flesh is permitted if the bone does not protrude through the flesh and if it does not show excessive bruise or blood clots. The carcass after chilling must be eviscerated within forty-eight hours from the time of slaughter, and frozen at low temperatures after packing. No individual package of this grade shall contain more chickens, which fail to qualify as choice, than in the proportion of 2 to each 12.

*Grade C* is edible poultry below the grade of *Grade Choice*.

After evisceration, the net weight of broilers, fryers and roasters individually and per dozen, including giblets, shall be not less than 70 per cent and not more than 75 per cent of the weights specified for uneviscerated birds of the same class; for fowl, the net weight shall be not less than 70 per cent and not more than 80 per cent of the weights specified for uneviscerated birds of the same class.

The Army does not purchase poultry below *Grade B choice* and does not purchase any of the following poultry items, regardless of grade, unless officially authorized: geese, stags, old roosters, old hens (turkey), old toms (turkey), breeder toms (turkey), turkey toms under 14 pounds each and fowl under 36 pounds per dozen.

#### PACKING

Eviscerated poultry products for army contract are packed in clean, sanitary surroundings in suitable sanitary commercial containers in accordance with the best commercial practices and army specifications.

Wire bound, wooden boxes are most popular for domestic and export use, although some eviscerated poultry for domestic use has been packed in other types of containers.

For domestic shipment, the name of the manufacturer, contract number, date of slaughter, number of head, type, grade, and class of product, and the army veterinary inspector's stamp must be properly and clearly placed on each

container after packing. Waterproof and sun-proof stencil ink must be used. In addition to the above, containers for export must be clearly marked with the cubic feet displaced and the gross, tare, and net weight. The container must be strapped at each end when so specified or required by the terms of the army contract.

#### FREEZING

Eviscerated poultry carcasses are fast frozen at  $-10^{\circ}\text{F}$ . or colder following evisceration, grading, and packing. It is important during the freezing of eviscerated poultry to stack containers so that there is an adequate circulation of air around each one. This aids in faster, more uniform freezing. Frozen eviscerated carcasses are not allowed to thaw after freezing and are held at  $-5$  to  $-10^{\circ}\text{F}$ . until they are shipped.

During the storage period, care must be exercised to avoid freezer burns, drying, soilage, discoloration, contamination, absorption of odors, and any other deteriorating conditions which might appear. To avoid these conditions it is, therefore, important that refrigerators be kept clean, odorless, and at the proper temperature at all times during the various periods of refrigeration.

#### TRANSPORTATION OF EVISCERATED POULTRY

Eviscerated poultry products for army contract are inspected by army veterinary personnel for quality and condition at points of origin and destination. The loading of all types of frozen food products into the interior of properly pre-cooled public or military conveyances is supervised by army veterinary personnel to see that the products are properly handled, and that no thawing of the product takes place during loading. A canvas curtain placed over the open door of the conveyance while loading aids materially in maintaining the refrigeration temperature. Conveyances transporting frozen food products for the army must be clean, odorless, sanitary, well insulated, and equipped with adequate refrigerating facilities, floor racks, and tight outer doors.

After loading of the conveyance has been completed and before sealing the outer door, the army veterinary inspector should inspect the interior of the conveyance to make certain that the product is properly loaded, and that the refrigerating system will give the product ample refrigeration during transit to destination. If the product is to be long *en route* and the weather is extremely warm, dry ice placed in suitable bags may be suspended from the ceil-



ing at desired intervals through the conveyance to supplement the refrigeration system. This helps to insure arrival of the product at destination in proper condition.

Modern evisceration of poultry is a definite step toward producing a better poultry food product for military consumption.

### Fowl Cholera in Ring-Necked Pheasants

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Although pheasants are mentioned as being susceptible to *Pasturella avicida* by Ward and Gallagher,<sup>1</sup> there seems to be no authentic account of an outbreak of this disease in the literature. Furthermore, the check list of bacterial diseases published in the JOURNAL of the American Veterinary Medical Association<sup>2</sup> does not mention this species in connection with fowl cholera. It, therefore, seems worthwhile to record this outbreak.

On Nov. 13, 1941, a feed salesman presented 2 dead pheasants for examination with the statement that the owner had lost 150 birds in two days out of 1 pen of 500 to 600 birds. A few losses had resulted in pens on either side of this pen. The symptoms described suggested equine encephalomyelitis, which later proved to be more imaginary than real. However, brain tissue was removed aseptically and immediately inoculated into eight 11-day embryonated eggs. Cultures were taken from the liver of each specimen.

The following morning, all embryos were dead. However, the liver cultures showed the presence of an organism resembling that of fowl cholera. The eggs were opened. The embryos were hemorrhagic and the chorioallantoic gelatinous. Cultures were taken and an organism similar to that of fowl cholera was isolated.

On Nov. 14, 1941, a visit was made to the pheasantry near Chester, N. J. There were 3 pens in which there was a total of about 2,000 birds. According to the owner, 300 birds from the center pen were sold to

the state on October 15. Men employed by the state helped to catch the birds. During the course of the brooding season, many birds had escaped and had congregated in a piece of swampy woodland about one-third of a mile away. Here they were in association with chickens from the adjoining farm. On October 31, the owner rounded up about 100 pheasants in the swamp and returned them to the center pen. It was here that the first losses occurred. At the beginning, the owner found 4 to 6 birds dead each day. Perfectly healthy looking birds would suddenly squat down, stick out their heads and fall dead. The disease spread to the pens on either side and the tempo of losses increased until a total of between fifteen and sixteen hundred birds had died.

Unfortunately, it was not possible to obtain chickens from the adjoining farm for bacteriological examination. However, Pritchett, Beaudette, and Hughes<sup>3</sup> have shown that chickens frequently act as healthy carriers of the fowl cholera organism. It, therefore, seems likely that the pheasants became infected through their association with these birds in the woodland. Then, when they were returned to the main flock, they established the infection there.

At the time of the visit to the farm, 12 birds were acquired for examination. As it turned out later, these consisted of 6 cocks and 6 hens, thus indicating no difference in susceptibility between males and females. The birds were all young, having been hatched in May, June, and July, 1941.

**Autopsy.**—The birds showed more or less identical lesions. In 4 of them, petechial hemorrhages were seen in the heart. Ten showed small necrotic areas of varying degree of intensity in the liver. There was some pneumonia and a hemorrhagic enteritis was especially marked in the duodenum. A thick mucus was found in the nasal cavity. The spleen was light in color and showed injection of the blood vessels. Cultures were taken from the liver and an organism resembling *P. avicida* was isolated from 10 of the 12 specimens. One bird, from which the organism was not isolated, was thin and showed no changes sugges-

Journal series paper of the New Jersey Agricultural Experiment Station, Rutgers University, department of poultry husbandry.

<sup>1</sup>Ward and Gallagher: Diseases of Domesticated Birds. The MacMillan Company, 1923.

<sup>2</sup>Appendix to the report of the Committee on Poultry Diseases, Seventy-seventh Annual Meeting. J.A.V.M.A., 97, (Nov. 1940): 512-526.

<sup>3</sup>Pritchett, Ida W., Beaudette, F. R., and Hughes, T. P.: The Epidemiology of Fowl Cholera. IV. Field Observations of the "Spontaneous" Disease. J. Exptl. Med., 51, No. 2: 249-258.

<sup>4</sup>Hughes, T. P.: The Epidemiology of Fowl Cholera. II. Biological Properties of *P. Avidica*. *Ibid.*: 225-238.

tive of fowl cholera. Two specimens of *Syngamus trachea*, a parasite of frequent occurrence in pheasants, were found in the lower part of the trachea. The other showed no liver lesions but did show a catarrhal enteritis.

**Colony Morphology.**—Hughes<sup>1</sup> has shown that when *P. avicida* is streaked on hemolyzed blood-agar plates three colony types present themselves, fluorescent, intermediate, and blue. All of the cultures were streaked on hemolyzed blood plates and were found to be of the intermediate type.

**Fermentable Substances and Indol Test.**—Five of the cultures were selected for further study. Dunham's fermentation tubes with Andrade's indicator were prepared. Of the seven carbohydrates usually considered critical, dextrose, saccharose, mannitol and xylose were fermented with formation of acid and no gas. Lactose, maltose, and salicin were not attacked. Two of the cultures were inoculated into a further series of carbohydrates and in addition to those previously mentioned, galactose, levulose and sorbitol were fermented. Adonitol, arabinose, amygdalin, dextrin, dulcitol, erythritol, inositol, inulin, melezitose, raffinose, rhamnose, soluble starch and trehalose were refractory. All five strains gave a positive test for indol when grown in beef extract broth for three days and examined by the method of Ehrlich.

**Pathogenicity.**—The cultures were carried on 1.0 per cent hemolyzed blood agar to prevent possible loss of virulence. In testing for pathogenicity, the organism was grown for twenty-four hours in beef extract broth containing 1.0 per cent whole blood. In contrast to its apparent virulence for pheasants, the organism was apparently nonpathogenic for chickens when given by the natural portal of entry, the respiratory tract. Ten chicks 4 weeks old were inoculated intranasally with 0.2 cc. of culture. They showed no evidence of infection nor was there a rise in temperature. Of 4 pullets inoculated intraperitoneally with 1.0 cc. of culture, 2 died in four and five days, respectively, and the organism was isolated from the liver. The other two, though they showed a rise in temperature to 108.8 and 109.6 F. twenty-four hours after inoculation, recovered. On June 2, 1942, 8 pullets received 0.2 cc. of culture subcutaneously in the web of the wing. An intense local infection resulted but, with

one exception, they showed no sign of illness. In this bird, the temperature rose to 108.5 F. and dropped to normal in three days. Later, it developed an arthritis. It was sacrificed and a pure culture of the organism was isolated from the hock joint.

## Chicken for Soldiers Bought in Near East\*

Veterinary Inspection Protects Health of Our Troops  
By Wireless to *The New York Times*

CAIRO, Egypt, Jan. 18.—American soldiers in this area now are eating fresh chicken in their mess halls for the first time as a result of an untiring campaign by Army veterinary supervisors to clean up poultry dressing establishments, which hitherto were unable to meet the rigorous standards of cleanliness demanded by the Army authorities.

Although American troops have been stationed in the Middle East for eighteen months, all the poultry and most of the meat they consumed have had to be shipped from the United States. As part of the general effort to conserve shipping space by making Army establishments self-sufficient, the chief veterinarian of this command was told to tackle the problem of buying foods in local markets as long as he was satisfied the soldiers' health would not be impaired. All possible care has been exercised in the inspection and handling of food, according to Lieut. Col. Edgerton L. Watson of Louisville, N. C., in charge of veterinary services.

About 300,000 pounds of meat are kept on hand in cold storage to serve the troops in the headquarters area and each shipment must pass under the trained eye of an Army veterinarian.

\*Reprinted from the *New York Times*.

Two hundred million dozen more eggs and 100 million more pounds of meat could be poured into the dwindling war-food stock by stopping 5 per cent of the disease losses (in poultry), states Dr. Cliff D. Carpenter, executive secretary of the Poultry Conservation for Victory Program.—*Poultry Tribune*.

Veterinarians are consistent buyers of War Bonds because they score high in pragmatism—natural and acquired.

# Occurrence of the Cereal Mite in War Dogs

CAPTAIN GERRY B. SCHNELLE, V.C., A.U.S., and MAJOR T. C. JONES V.C., U.S.A.  
*Front Royal, Virginia*

WHILE CONDUCTING a routine examination upon the stool from an Airedale which had been admitted to the Veterinary Station Hospital at Front Royal, numerous eggs, immature forms, and an occasional gravid female of the genus *Tyroglyphus*, the cereal mite, were observed. Samples of the stool

aminated from 3 other dogs suspected of having intestinal parasites. All showed numerous immature mites and eggs.

The oatmeal was fed on the morning of August 14 and mites were discovered in the stool of the Airedale the following morning. Feeding of the meal was discontinued, but stools of the original dog and of 3 others still contained eggs and mites on the seventeenth, three days later. On the fourth day all again were negative. During this time there was no evidence of disturbed digestion nor other illness traceable to the oatmeal containing the mites.

This parasite has been called the pseudo-sarcoptes by Parks<sup>1</sup> because of its resemblance to *Sarcoptes scabiei canis* which may occur in the feces of dogs affected with

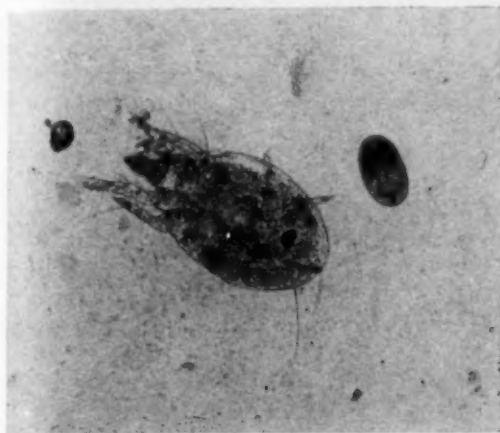


Fig. 1—*Tyroglyphus* sp., cereal mite and egg from the intestinal tract of a dog. x100.

had been strained and mixed with a saturated solution of sodium nitrate. After standing for ten minutes or longer, the floating material on the surface of the solution was examined microscopically.

The source of the mites in this instance was traced to rolled oats which had been thoroughly cooked and fed to the dogs in the hospital. Flotation of the dry rolled oats in the nitrate solution gave smears which were teeming with live mature mites.

Although fecal examinations had been performed on numerous hospitalized dogs which had been fed the rolled oats, this was the first instance in which the mites were disclosed. It was judged, therefore, that the parasites had not spread through the original container, a 100-lb. sack. Before its use in the hospital, the meal had been transferred to a galvanized iron can.

The next day, fecal flotations were ex-

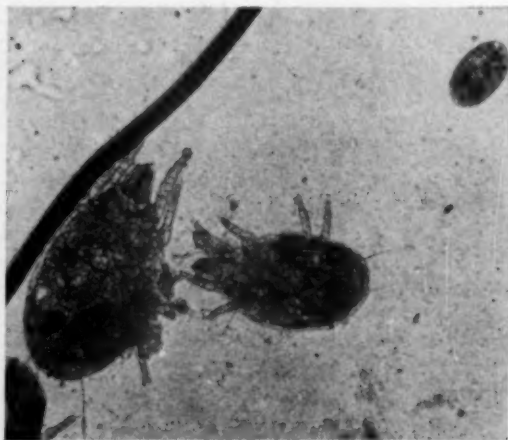


Fig. 2—*Tyroglyphus* sp., mature mites and eggs. x100.

sarcoptic mange. Shepard<sup>2</sup> describes the genus *Tyroglyphus* as follows:

The adult female lays 20 to 30 eggs or more, scattered in, about, or on the food. The period of incubation varies from three or four days to several weeks. The larval stage lasts for five or more days and the nymphal stage for six or more days. Hence, the life cycle may occupy as little as fourteen days under very favorable conditions.

Mites of various species occur in all cereal products, dried fruits, cheese, dried meats, and many other articles of food. They are common in neglected corners contaminated with moldy flour, sour milk, and the like.

From the Veterinary Station Hospital and Veterinary Research Laboratory, Army Remount Depot, Front Royal, Va.



It may safely be said that there is no more difficult pest to combat. Its small size, rapidity of multiplication and development, and peculiar habits fit it for life in stored food products. Under certain conditions, some pass into a resting stage known as "hypopus." In this condition, they are covered with a hard crust which prevents them from drying out and allows them to live without food for months, during which time they may be blown about with dust or carried on mice or flies. If at any time conditions are favorable, they will emerge from this peculiar stage and reproduce. All the mites may seem to have disappeared from a bin that was formerly infested, but as soon as new material is stored in it they reappear.

According to Parks,<sup>1</sup> Dibbell and Ruble believe that infested food is harmless to adult dogs but agree that it causes frothy diarrhea in young puppies. The mites are known to produce dermatitis (baker's itch) in man.<sup>3</sup> This genus has also been reported to have produced human intestinal acariasis.<sup>4</sup> Food storage bins may become heavily contaminated and complete disinfection is quite difficult.

#### COMMENT

In the instance reported herein there was no evidence that feeding the mites had any effect upon the dogs to which it was given. Of interest is the fact that stools of 4 dogs contained the mites three days after the last feeding of the infested food. Also of interest is the curious fact that eggs and immature mites predominated in the stool while mature mites were more prevalent in the food.

These mites may be identified erroneously as *Sarcoptes scabiei canis*, a mistake which might easily be made in searching the stool of a dog thought to be affected with sarcoptic mange. An examination of the food may be necessary in order to arrive at a correct diagnosis.

#### References

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<sup>3</sup>Strong, Richard P.: Stitt's Diagnosis. Prevention and Treatment of Tropical Diseases. 6th Ed., 2, (1943): 1492. The Blakiston Co., Philadelphia, 1943.

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## Corn-Cob Meal for Ruminants

Although corn-cob meal alone was never acclaimed as having any food value, the grinding of corn and cob for feeding cattle is at least a 60-year old practice. Ohio farmers ground "cob-and-all" in the 1880's to feed the milk cows and fattening steers. The subject was recently revived by studies pursued at the Ohio Agricultural Experiment Station (*J. Anim. Sci.*, Nov. 1943) and the results have been widely published in the agricultural press. An abstract of the article was published in *Veterinary Science Newsletter*, No. 6 written for the OWI for foreign distribution. In *Bulletin*, No. 469, Jan. 2, 1944, Eastern Iowa Veterinary Association, A. R. Menary quotes the *Breeders' Gazette* on this rejuvenated topic as follows:

Three loads of ear corn were taken. The first load was ground up, cobs and all; that was regular corn-and-cob meal. The second load was shelled, the cobs were taken out and mixed with the third load of corn and the shelled corn was coarsely ground; that was the ground shelled corn. The third load now consisted of ear corn plus the corn cobs from the second load; this was all ground up together so that that feed had a double dose of corncobs; we may call it double-shot corn-and-cob meal.

Steers fed the double-shot corn-and-cob meal did surprisingly well. Astounding as it may seem, they seemed to get something out of those ground corncobs which sustained their health and promoted their gains. The ground shelled corn steers were figured to dress 62 per cent and were valued at \$16.10 per cwt. The corn-and-cob meal steers would dress 1½ per cent under that and were worth \$15.60 a cwt. The double-shot corn-and-cob meal steers were valued at \$15.60 per cwt.

But, here's the payoff: The double-shot corn-and-cob meal steers cost only \$11.76 per cwt. of gain; the regular corn-and-cob meal steers cost \$12.98; while the cobless steers, the ground-corn shelled corn lot, cost \$14.45. That was a saving of 20 per cent of the corn.

The theory is that corn-cob substance participates in the propagation of the microflora of the rumen which is now known to synthesize essential vitamins not contained in the feed eaten.

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# SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

## Vaginal Smears in the Diagnosis of Vitamin A Deficiency

RAY D. HATCH, D.V.M., M.S.

Blacksburg, Virginia

THE USE OF vaginal smears to determine the phase of the estrual cycle of the rat has been extensively used in the laboratory and is an extremely accurate guide in these determinations.<sup>1</sup> Similar or parallel observations on the normal cow fail to reveal any consistent or accurate information.<sup>2</sup> The variations between animals and between cycles in the same animal render observations of this sort practically valueless in cattle.

In cases of vitamin A deficiency, the development of keratinized epithelium is quite characteristic.<sup>3</sup> In female rats, fed on a diet deficient in vitamin A, a persistent cornification of the vaginal epithelium appears some time before any eye lesions develop. If epithelial keratinization should occur consistently in subclinical deficiencies in cattle, efficient tests of this sort would be an invaluable aid to the diagnostician.

The Virginia Agricultural Experiment Station was maintaining several animals on nutritional tests that were thought to be at least suboptimal in vitamin A. The animals were divided into two groups. One group was fed a diet using alfalfa hay as a roughage base and a grain supplement using white corn meal. The other group was fed timothy hay as a roughage base but used yellow corn meal in the grain mixture, and in addition received 103 Gm. of steamed bone meal. The group on timothy hay received 100 Gm. of irradiated yeast daily. The group on alfalfa received 100 Gm. of non-irradiated yeast in the daily ration.

None of the animals appeared to be suffering from a clinical vitamin deficiency. All of these animals did develop metritis, in varying degrees of severity, and re-

tained the fetal membranes after calving. While the regularity and severity of infections of the reproductive organs is not *prima facie* evidence of avitaminosis A, it was in this instance suggestive of a deficiency of some substance or substances.

Tests of the plasma vitamin A of these animals was later found to vary from 100 to 500 I. U. (or 60 to 300 gamma per 100 cc. of blood plasma.<sup>4</sup> The animals on the alfalfa hay diet showed slight but consistently greater values than the cows on the timothy hay diet. Boyer *et al.*<sup>5</sup> found that 50 to 70 gamma of carotene per 100 cc. of blood was barely adequate for normal growth in Holstein calves. Moore<sup>6</sup> found that plasma carotene levels of 0.13 gamma per cc. of plasma permitted the development of eye lesions and night blindness (nyctalopia) in calves, but in mature cows the deficiency level was somewhat higher (0.5 gamma per cc.). The work of Moore indicates a possibility of a greater vitamin A requirement in mature producing cows than in young growing calves.

The animals used in this experiment included all of the test animals as experimental with an equal number of animals on normal rations as controls. The control or parallel group was known to be normal as to estrual and reproductive activity. Some were pregnant animals, in varying stages of gestation, and some were recently freshened or unbred cows. An accurate history of the reproductive activity of each animal was available.

Vaginal smears were taken from several animals as near the same time of day as possible. The smear material was obtained by using a glass rod, slightly flattened at one end, through a glass speculum. The material was obtained from the dorsal vaginal wall just above the vaginal opening

From the Department of Biology, Virginia Polytechnic Institute, Blacksburg.

of the cervix. All slides were examined as soon as made, in an unstained state. Some of the slides were dried, fixed in methyl alcohol, and later stained with methylene blue to check the first observation.

There were no consistent or characteristic materials present at any time of the cycle in any of the animals observed.

There were many leucocytes and much mucus present in the suboptimal A group of animals. There were also some cornified epithelial cells present in each slide from this group of animals, but when compared to the normal animal they were neither consistent enough nor numerous enough to warrant any conclusions.

It was not possible to tell with any degree of accuracy whether the smear was obtained from a test or a control animal.

It was not possible to tell by the appearance of the smear whether the animals were pregnant, in estrum, in diestrum, or suffering from a mild metritis.

#### CONCLUSION

Vaginal smears by the technique used in this series of observations are not adequate to diagnose or indicate avitaminosis A in dairy cattle.

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The "Spirit of '76" is the "Spirit of '44". It's the spirit time will never rub out. It's engraved on every War Bond you buy. It spells freedom.

#### Plaster of Paris

Plaster of paris (= anhydrous calcium sulfate) is made from gypsum (= hydrated calcium sulfate), an underground deposit mixed with silicates, iron, and carbonates. To transform gypsum into plaster of paris it is heated to drive off the water of crystallization. Nearly 100 per cent of the impurities is removed and a proper *accelerator* is added to shorten the length of the setting time. The setting of the plaster of paris of orthopedic surgery, that is the hardening process, is due to crystallization in the presence of water and subsequent evaporation of the water contained.

Although this hardening chemical has been used in one way or another since the turn of the eighteenth century, it was first employed, in the manner now in vogue, by a Dutch medical officer, A. Matthysen, in 1852. Since the Crimean War (1854-1856), its use for the retention of fractures has been extensive and world-wide. Man had been searching for a comparable material for 2,500 years and many materials up to the present time have been introduced and tried, only, however, to fall back on plaster of paris ever since Matthysen demonstrated its use with bandage material. In short, nothing better has been found.

The common practice today is to use prepared plaster of paris bandages, a specification for which is exact rolling. If too loose, the bandage telescopes in handling, and if too tight, it does not soak up water quickly enough to insure a uniform irrigation.

In large animals, for economic reasons, crinoline or other coarse cotton fabric can be rolled out of a heavy mixture, wrapped on, and reinforced by plastering some of the sediment thinly over each layer. Molding the cast, keeping down its weight and volume, and making the integer serve the purpose of holding the fracture fixed, are left to the surgeon's ingenuity.

Keeping in mind that maximum fixation is incomplete until the cast is dry, through and through, there is a critical post-application period. While thin casts will dry in a few hours, thick ones, as shown by actual tests,\* may be bendable in the deep layers for several days. This fact is important in

\*Experiments conducted by engineers of the Douglas Aircraft Company, Santa Monica, Calif., reported by Captain J. Vernon Luck, M.C., A.U.S., *J.A.M.A.* Jan. 1, 1944.



animals because movements are not easily eliminated. Bending, wrinkling, bulging, lead to pressure necrosis.

After a fracture has been set and this method of retention is chosen, the plaster of paris cast must be applied quickly. The next layer is applied before the last one has had time to harden. Slow work invites objectionable lamination of the cast, and to avoid creating *pressure points* even compression is essential. In the use of plaster of paris, these simple facts may stand between the successful and unsuccessful fixation of fractures. The ingenious methods of reinforcing casts (Thomas splint, aluminum plates, yucca board) do not dismiss these principles. External skeletal fixation (Stader splint) is entirely another subject.

### Artificial Insemination:

#### Higher Dilutions of Semen

Through methods developed at the New York State College of Agriculture, 80 or more cows can be artificially bred from one ejaculation, compared with the former maximum of 10 to 20 inseminations. A dilution of 1:17 that holds safely for a number of days in cool storage is announced. As to the composition of the diluent, handling, and temperature, no details are given, except that with such a dilution as many as 87 cows have been bred. Artificially induced conception in cows was started on a sizable scale in New York in 1938. Now upward of 30,000 are bred that way every year in that state, the report states.—*From Science Digest.*

April is a critical period in the life of a farm horse. Having been kept on subnormal rations through the winter and suddenly fed up for the spring work, the farm horse is apt to suffer from digestive trouble, azoturia, and will certainly have sore shoulders if not carefully rigged.

A poultryman had the hobby of helping chicks out of the shell and nursing them to maturity. Now he's out of the chicken business.

If Germany does not protest openly and in earnest against the atrocities of its Oriental ally, will it deserve a place at all among the nations of this civilization?

### Twin and Triplet Foals in Thoroughbreds

According to *Blood Horse*, magazine devoted exclusively to the turf, the incidence of twins in Thoroughbred broodmares is 1 : 50, not 1 : 10,000 as some have believed. Moreover, besides having had reports of three sets of triplets in the last three years, mention is made of triplets having been born to Thoroughbred mares in 1899, 1909,

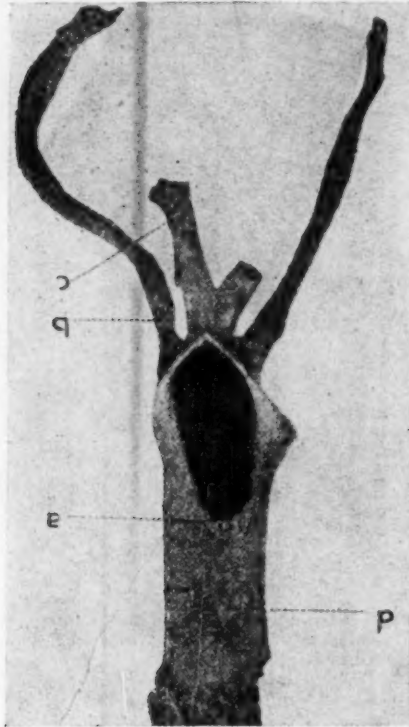


—After Dr. Cassius Way.  
Saddle mare Una Woodford and her 1941 twin foals  
by Kentucky My Own.

and 1941 (2 cases), and several others not officially recorded. Of course, none of the triplets were viable. Oettingnen (cited by W. L. Williams) sets the incidence rate of triplets in mares at 1 : 300,000, a figure quite in agreement with the rare incidence of triplets recorded by *Blood Horse* since the turn of the century. There is neither economic nor scientific importance to these figures since they merely represent rare cases of exalted ovulation in a high strung breed. More significant is the relatively higher incidence of twinning in Thoroughbred than in common grade mares, which ranges between 0.18 to 0.23 per cent according to Oettingnen (*loc. cit.*). Williams throws confusion in these twin statistics when he reports a personal observation of 6 twinnings in 26 mares on one farm. Only one truth is outstanding and that is that the fecundation of more than one ovum in mares is generally a reproductive tragedy.

## Thrombosis of the Iliac Arteries in Horses

An article entitled "Traumatic Iliac Thrombosis in a Race Horse," in the *Indian Veterinary Journal* (Nov. 1943)\*, raises the controversial question of the etiology of an important (but somewhat rare) entity affecting the light breeds of horses which parasite-minded clinicians, without proof



—After *Archiva Veterinara*, 1906.  
Fig. 1—(a) anterior end of thrombus. (b) external iliac artery. (c) internal iliac artery. (d) aorta split open.

whatsoever, have dismissed as a form of strongylosis, just taking for granted that this must be true. More critical clinicians, however, have questioned that snap judgment mainly on the ground that this lameness is seldom, if ever, seen in the heavier breeds, which, needless to say, are more commonly, or at least quite as commonly, exposed to blood-sucking strongyles as the Thoroughbred, the light harness horse, and the heavy harness show horse, which seem

to have a monopoly on this affliction. Strongylosis attacking blood vessels is no respecter of breeds. Its chief local manifestation is in the mesenteric arteries of the work horse. Moreover, the gross pathology of iliac thrombosis bears no similarity to the lesioned walls of the mesentery vessels. The lesion found in animals dead from thrombo-embolic colic of the old authors is a frightful damage of the arterial walls, shapelessly tumefied and riddled by larvae, whereas in iliac thrombosis only the endothelium is damaged. The media and adventitia are sound, intact, undamaged, and the plug in two cases critically examined consisted of concentric layers of plastic material laid one upon the other with considerable regularity as if one layer after the other were deposited at different stages, the last layer laid down performing the function of the damaged intima and gradually, never suddenly, shutting off the circulation of the leg or legs. Sometimes but one of the iliacs of the lame side is affected, sometimes both the external and internal arteries are undergoing the plugging up process. In some instances, the deposited material is limited to the site of the aortic quadrifurcation and at others it extends like a spider web six inches to a foot or more toward the periphery, and no one to our knowledge has ever succeeded in finding worms in any way connected with the trouble. The character of the gross lesions as compared with verminous aneurysms, like the susceptibility of race horses, commands attention.

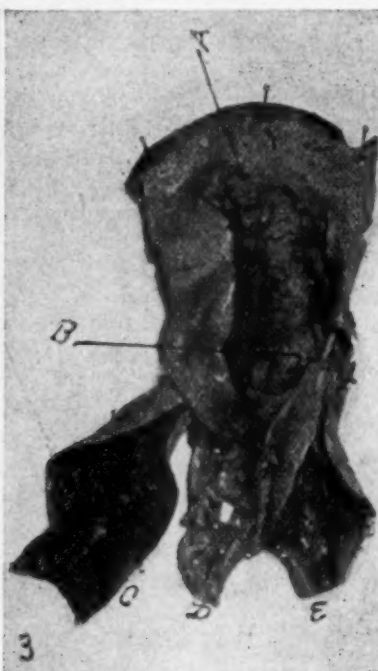
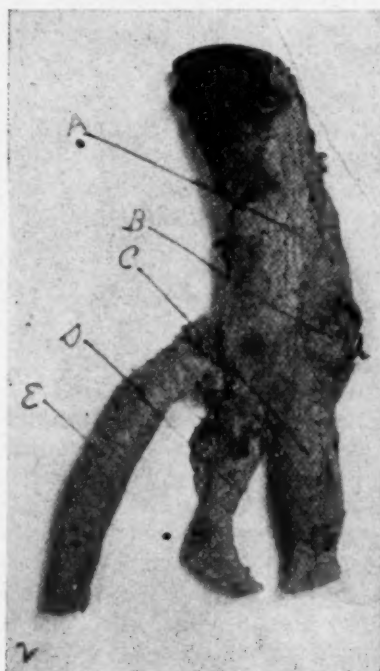
**Clinical Study.**—Iliac thrombosis is an acute, periodical lameness manifested by a sudden attack of excruciating pain in a hind leg during exercise. The horse is gravely stricken, sweats, pants and has a bewildered look, all followed in fifteen or more minutes with absolute normalcy—a strange phenomenon before its nature was understood. Pathologically, it is a partial ischemia of the affected leg due to obstructions of the external iliac artery. The pain, if not also the mechanism, is comparable to the agony and nature of coronary thrombosis of man.

As a rule, the first attack strikes down a horse coming into the stretch of a hard race. Nothing was noticed at the work out in the morning. The canter and quarter

\*Magsood, M., L.V.P., Department of Physiology, Punjab Veterinary College, Lahore, India: Traumatic Iliac Thrombosis in a Race Horse. *The Indian Veterinary Journal*, 20, (Nov. 1944): 133-136.

mile "breeze" in the morning were not severe enough to precipitate an attack. Later, it will be observed that the same amount of work that brought on the first attack will bring on the second, with arithmetic precision. As the disease advances, attacks occur with less and less exercise until a hun-

The case report (*loc. cit.*) is extremely fascinating in having been named "traumatic." The author attributes the cause to injury of the posterior aorta from a fall in a race described as an accident by the owner. There was no evidence that the thrombosis was not present before that particular race.



—After E. M., 1907. —After E. M., 1907.  
 Fig. 2—Thrombotic aorta and iliac arteries. (a) aorta. (b) stump of left external iliac artery. (c) left internal iliac artery. (d) right internal iliac artery. (e) right external iliac artery.  
 Fig. 3—The same specimen split open. (a) anterior pointed end of the thrombus. (b) body of the thrombus. (c, d, e) thrombotic arteries split open.

dred-yard trot at the halter is sufficient to bring on a spell.

In the early phase, a study of the pulsations of the iliacs by palpation per rectum may not reveal any pronounced difference between the arteries of the affected and the sound side, but later, as the plugging increases, the iliacs of the affected side are found to be less compressible and the pulsations less distinct. The end of the posterior aorta is hard and somewhat enlarged in the advanced case. During the attack, the leg is somewhat colder than its mate, and it may be the only part of the body that is not bathed with perspiration. Gradually, the subject gets more and more worthless and finally is killed as an incurable, normal as it may seem at rest.

Perhaps, the young mare had not been that severely taxed during preceding days or weeks. This is not intended to be an argument but rather to compliment the author and the pathologists of the Punjab Veterinary College for not agreeing with the unsupported parasitic theory and letting the clinician's traumatic theory stand.

The conclusion we have arrived at from the examination of the two cases mentioned above is that the entity called iliac thrombosis in horses is due to endothelial damage at an extremely turbulent place in the horse's vascular system—the veritable squirt gun of four spouts, made up of the abrupt ending of the posterior aorta and the four arteries (two internal and two external iliacs)—which is severely taxed by



the swift flow of large volumes of blood in a horse trained and raced at high speed. Germs and parasites are not the only causes of structural damage. Physical stress can injure an internal organ just as well as it can break a leg. The endothelium of the aortic quadrification is under severe strain in a race horse. That is, perhaps, why it's a race horse disease.—*L.A.M.*

### "Problems of Breeding"

Although in certain remote respects, it may seem to be a taxonomic error to place "Problems of Breeding" in the section of "Surgery and Obstetrics," all fetal and neonatal troubles are allied thereto and there are but few exogenous problems of animal production that are not in some degree associated with the physiology and pathology of the reproductive process. Authors who find their seemingly unrelated articles in this section will pardon the liberty taken. "Surgery and Obstetrics and Problems of Breeding" covers a broad field. There is no intention to stretch the definition of words. Veterinary taxonomy is a swaddling youngster, in this Year of our Lord, 1944.



This compact hog of 1,375 pounds was raised in Montana where, according to Dr. W. J. Butler, state veterinarian, they have not as yet "caught on" how to grow and fatten hogs. This is just a beginning.

### Destroy Mosquitos Indoors

If the breeding place of mosquitos and other insects cannot be destroyed, measures should be taken against them indoors. Dusting or spraying with insecticides cor-

ners and cornices near the ceiling where insects rest in daytime should be practiced. Also, mosquitos can be caught with sticky substances placed upon boards in corners where they congregate. Two boards set at right angles at corners are used.—*C. R. Acad. Sci. URSS. Abstr. Rev. Applied Entomol.*, 31, (Dec. 1943): 236.

### Clinical Aspect of Shock

Blalock's classification of shock into hematogenic, cardiogenic, neurogenic, and vasogenic has much to recommend it, but in the emergencies of overwhelming numbers in war, the factors involved may not be determined. The surgeons of the last war erred in accepting histamine shock as the basis of their studies. At the present time, the outstanding clinical problems of shock are oligemia and its sequels resulting from hemorrhage and plasma loss to injured tissues; renal failure following the restoration of circulation through injured tissues (crushing, compression, arterial spasm); burns, infection and pulmonary embolism.—[*John McMichael, M.D. (Edin.), Acting Director, Postgraduate Medical School, London: "Clinical Aspect of Shock," J.A.M.A.*, 124, (Jan. 29, 1944): 275-280.]

The long treatment of the subject based on current observations will interest students of surgical shock in animals, mainly in regard to the stress placed upon oligemia (= deficiency of chyme) which does not seem to have been held out as a phenomenon of shock in clinical veterinary medicine, natural as it would seem to be significant in view of the abnormally vast vascular irrigation of the digestive tract of large animals. Veterinary surgeons who have studied, critically, surgical shock in large animals were never able to dismiss the digestive tract and other splanchnic organs as the site of the upset circulatory equilibrium. It was there that shock always left the best evidence of its hematogenic character. In the cadaver of a horse or large ruminant, the telltale picture of hemoconcentration in the intestines is seldom lacking.

The almost total loss of vitamin A in making egg powder is said to be prevented by adding wheat germ oil to the egg material before drying.

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# CLINICAL DATA

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## Clinical Notes

Promin is the most promising drug yet used in the treatment of leprosy at the National Leprosarium.—*Public Health Reports*, Nov. 26, 1943.

It requires an hour's labor to produce a pound of butterfat and few people nowadays work for 50 cents an hour, says *Hoard's Dairyman*.

From London comes the announcement that patulin, cousin of penicillin, brought into contact with the affected mucosa, is an almost immediate cure for colds.—*From Science Digest*.

The genetic constitution of the cow is a factor in the persistency of lactation. Inherited genes, rather than environment, govern the duration of the milking period. The persistency of a cow's first lactation period is a fair indication of her future performance.—*From Ludwick, Petersen and Fitch, Journal of Dairy Science*.

The somewhat common belief that castration is a cure for cancer of the prostate is erroneous and unsupported by any authentic clinical report. The truth appears to be that castration inhibits the neoplastic process in prostatic tumors but not the carcinomatosis.—*From J. A. M. A., Jan. 8, 1944*.

Of the many snake venoms—each species has its own formula—only two or three have been analyzed, and these but partly. The active principle of snake venom is a complex protein—a CHON compound. The venoms of the cobra, rattlesnake, viper and moccasin are used therapeutically. Their action, respectively is analgesic, sedative, hemostatic, and coagulant.

Sulfonamides, mainly sulfathiazole, are largely replacing all other drugs in the treatment of shipping fever in cattle. The fever quickly drops to normal under the treatment, we are told.

The discovery of penicillin and tyrothricin brought into the limelight the terrific battle that is always being waged among the microbes of the soil.

A case of poliomyelitis (infantile paralysis) in a newborn infant, described in the Jan. 29, 1944, issue of the *Journal of the American Medical Association*, raises the question of prenatal transmission of a virus disease.

In respect to the effect of nutritive sufficiency, the producer of meat animals is mostly concerned with growth, gains, adult size, and reproductive ability. Those who handle dairy cows and horses are more interested in alimentation for productivity and performance.

The tick *Amblyomma americanum* (nymphs) collected in Oklahoma by workers of the United States Public Health Service was found to be a vector of the rickettsia, Rocky Mountain spotted fever. This is the third species of ticks known to transmit that disease. The others are *A. maculatum* and *Dermacentor variabilis*.

Sodium salicylate given by the mouth in lieu of bismuth salicylate, subcutaneously, is the treatment of choice recommended by James Marshall, British veterinarian. The dose recommended is 10 grains, three times a day. The presumption is that salicylates have a keratolytic action, notwithstanding that its excretion in saliva is not claimed.—*The Veterinary Record*, Dec. 28, 1943, p. 502.

# The Toxicity of *Glottidium Vesicarium* (Jacq.) Harper for Cattle

M. W. EMMEL, M.S., D.V.M.  
Gainesville, Florida

SEVERAL inquiries have been received at the veterinary laboratory of the Florida Agricultural Experiment Station regarding the toxicity of the coffee-bean weed, *Glottidium vesicarium* (Jacq.) Harper, for cattle. The pods and seeds were suspected of having been responsible for deaths among cattle. This plant has been reported poisonous to chickens by Emmel<sup>1</sup> and to sheep by Boughton and Hardy.<sup>2</sup> Foote and Gramling<sup>3</sup> found the toxic principle to be a saponin. It is a common weed in many sections of the South and usually is called "coffee-bean weed" although there are other weeds commonly referred to by the same name. The following experiment was conducted to determine the toxicity of the immature and mature seeds of *G. vesicarium* for cattle.

Three pounds of the immature seeds were ground coarsely and administered in a drench to a 200 lb. Jersey steer. Symptoms of poisoning occurred within forty-eight hours. After an illness of twenty-four hours the animal gradually recovered without treatment. A second Jersey steer weighing 250 lb. was drenched with 5 lb. of the ground immature seeds. Symptoms of poisoning appeared within twenty-four hours and death occurred about thirty-six hours later. After being allowed a thirty-day rest, the first animal was drenched with 8 lb. of ground mature seeds. Slight symptoms developed from which the animal rapidly recovered. After an interval of twenty days the animal was dosed with 11 lb. of the ground mature seeds. Symptoms of poisoning appeared in twenty-four hours and death occurred about forty hours later.

From the Agricultural Experiment Station, University of Florida, Gainesville, Florida.

<sup>1</sup>Emmel, M. W.: The Toxicity of *Glottidium Vesicarium* (Jacq.) Harper Seeds for the Fowl. J.A.V.M.A., 87, (1935): 13-21.

<sup>2</sup>Boughton, I. B., and Hardy, W. T.: Toxicity of the Coffee Bean (*Sesbania Vesicaria*) for Sheep. J.A.V.M.A., 95, (1939): 239-241.

<sup>3</sup>Foote, P. A., and Gramling, L. G.: A Chemical Investigation of the Seeds of *Glottidium Vesicarium* (Jacq.) Harper. J. Am. Pharm. Assoc., 29, (1940): 311-312.

The symptoms observed in these two steers were similar to those observed by Boughton and Hardy in sheep. The animals frequently moved from place to place in the early stages of illness even though they also showed marked depression and sluggishness. Diarrhea was not severe but the feces contained considerable mucus. Frequent urination occurred. The animals failed to eat after the onset of symptoms. The pulse was fast and irregular. Respirations were shallow and accelerated. While standing, the typical posture was a slightly arched back with the neck extended and head down. In the terminal stages the intensity of the depression increased and the animals remained in the recumbent position. Death occurred quietly.

Gross lesions were not numerous. The heart was flabby. The venous blood was very dark. All of the superficial blood vessels of the viscera showed marked distention. The serous surfaces of the omentum and four stomach compartments contained areas of fibrinous inflammation. Intense hemorrhagic inflammation occurred in the mucosa of the abomasum and extended about six feet into the duodenum.

The outstanding microscopic lesions were found in the kidney, liver, and intestines. The kidneys showed generalized, well-advanced albuminous degeneration which was more marked in the convoluted than in the straight tubules. Considerable necrosis occurred in the tubular epithelium; occasional tubules were completely denuded of epithelium. Well-advanced albuminous degeneration and occasional small foci of necrosis occurred in the liver. Marked congestion and inflammatory reaction were found in the abomasum and forepart of the duodenum. The spleen showed marked congestion.

The results of this limited experiment indicate that the immature or green seeds of *G. vesicarium* are considerably more toxic than the mature seeds. The failure



# Azoturia: Suggestive Pathology

L. A. MERILLAT

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HAVING always honored the old saying about the cobbler sticking to his last, I have seldom lumbered into the field of internal medicine in writing for publication, so I was not disappointed the other day that in a group of well-informed veterinarians, none had ever heard of a forty-year-old theory on the nature of that onetime tragic disease of the work horse. All agreed, however, that no disease of animals was as badly named as azoturia (=nitrogen in the urine), a name that seems to have come into use from the Edinburgh schools where it was described as "a hypernitrogenous condition of the blood, a disease of plethora (meaningless word derived from 'fullness')." All agreed also that hemoglobinuria of the French school is no better. Both of these names are based on urinalysis, not upon the source of the blood fractions excreted by the urine.

Since at least the turn of the century, my contention, frequently expressed but never published, has been that azoturia should be defined as "*a local myopathic catastrophe with some sort of lethal toxemia proceeding therefrom.*" The exact nature of the muscular catastrophe and just what the "some sort" of toxemia is, was left for the investigating pathologists. What happens in the great gluteals and what they pour into the blood stream were questions the clinicians were not expected to answer.

(Continued from preceding page)

of Cary, Miller and Johnstone<sup>4</sup> to induce symptoms of poisoning by feeding the leaves and pods of this plant to cattle probably was due to the large dosage required for toxic effects. Poisoning by this weed among cattle is not common although the weed grows extensively throughout the state. The mature seeds are hard and covered with a tough hull; it is doubtful that cattle under natural conditions will eat sufficiently of the mature seeds to induce poisoning.

<sup>4</sup>Cary, C. A., Miller, E. R., and Johnstone, G. R.: Poisonous Plants of Alabama. Ala. Poly. Inst. Ext. Cir., 71, (1924).

## THE CRURAL PARALYSIS A SEPARATE ENTITY

Next to the bad nomenclature is the erroneous conception of the crural paralysis (never gluteal) that is present almost as soon as the disease strikes and that expresses itself later as a lasting atrophy of the rectus femoris and the juxtaposed vasti—the crural muscles of the old anatomists. Why this atrophy in muscles that do not share, in any degree whatsoever, in the tremendous débacle in the gluteal group? The crurals are not congested (hardened) like the gluteus maximus which gets as "hard as a board" from the onset of the first symptom. On the contrary, the crurals are relaxed, paralyzed, and account for the crippling of the legs at every step from the very beginning. This puzzled the old clinicians, some of whom had the canny knack of writing good internal pathology from external phenomena. Here was a strange clinical tableau. In two contiguous groups of muscles, one was in a state of intense engorgement, the other in a state of paralysis that always led to lasting atrophy in the survivors, and always an atrophy that recovered in strict obedience to the course taken by paralysis of muscles due to peripheral nerve-trunk injury, a paralysis (atrophy) lasting two, three, four, or five months, depending precisely upon the amount of neuraxon damage the nerve trunk sustained. What a difference between the gluteals and the crurals! Why muff this in studying the pathology of azoturia? Coached by the teaching of Murphy on nerve regeneration, it seemed clear to us that something serious had happened to the anterior gluteal nerve. We reasoned that the hard-as-a-board gluteus maximus damaged the nerve of the crurals by pressure against the bone, disabled them right off, and inflicted enough damage to the trunk to cause a lasting paralysis, which recovered as the axons, in time, grew back to the end organs.

The gluteals, the original site of the débacle, do not atrophy, neither does

atrophy ever follow azoturia attacking the pectoral limb—the caput muscles. The intramuscular trouble does not cause atrophy. So, in our philosophy, azoturia presents two separate entities: (1) the myopathic, or main and primary phase, and (2) the neuropathic, or associated and secondary phase. Inasmuch as recent studies have incriminated an upset metabolism within the large muscles involved and the exact nature of the muscular catastrophe is in the offing, it seems *apropos* to suggest that the nature of the crural paralysis associated therewith should likewise be clarified. It is entirely too similar to traumatic nerve-trunk injury to dismiss and to confuse with the carbohydrate metabolism of the muscles concerned and the coincidental toxicosis.

Except as a hint to study what can happen within a large, hard-worked muscle suddenly put to work after a short rest and what a large muscle "as hard as a board" can do to a delicate nerve trunk caught between it and a bone, there is nothing of particular value in this theorem. The nature of the gluteal catastrophe remains in the field of investigation, but the cause of the crural paralysis seems to be too clear to contradict. I have no reference to bring in support of this belief except that, for the staff of our hospital in Chicago, azoturia was construed as strictly a local muscular disaster and the supervening crural atrophy an incidental, traumatic, neuropathic paralysis resulting therefrom.

There is no cure, nor worth while palliative medication. The prevention is avoiding sudden rest in hard-worked horses and stopping "right there" when the horse is stricken. The "sinking gait" aggravates the nerve-trunk injury and probably intensifies the excruciating pain. There is no evidence of pain, except the first sweat, until pressure causes the crural agony. These are the deductions made from physical symptoms observed on quite a large scale.

Pathologists and clinicians have attempted to associate azoturia with cold weather, which is true. But we were inclined to regard flies which keep rested horses busy in the stable in summertime as preventive agencies. This conclusion was based upon having observed that in well-screened stables, hardy, hard-worked horses suffered

from azoturia in warm weather, perhaps less frequently than in winter.

March and April are the azoturia months in farm animals. Horses are being rationed for work and rainy days find them confined to the stable for a few days between periods of hard work. The disease is much milder in farm horses. Many cases in the country are unilateral and, therefore, the mortality is not as high as in the onetime hard-work, truck horse of the city. I never saw a strictly unilateral case die, and saw but few bilateral cases recover.

#### DRUG TREATMENT FAILS

From the standpoint of therapeutics, azoturia will always remain a poor prospect. The damage has been done before the doctor arrives. It would seem that the therapeutic problem is to somehow neutralize the unknown products poured into the blood from the affected muscle, and to repair the damage they've done. There can be no objection to trying to accomplish these ends, unknown as their nature is. Oxalic acid, permanganate of potassium, bicarbonate of sodium, and later calcium gluconate—panacea of internal evils—have been injected into the blood stream for antidotal purposes but a review of reports on their use will show that they cured patients that would have been better off without them. Sedatives (in our hands) were not famous. They always seemed to cause more delirium than hypnosis. Azoturia is a disease to prevent and to nurse—dieting and exercise for work horses suddenly rested, and comfort for the sick.

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#### The Corn Borer

The Southwestern corn borer has invaded about one-half the counties of Kansas, and several bordering Nebraska counties are now infested. This borer kills corn plants by internal girdling of the stalks. A single borer can kill a large, mature corn plant with fully developed ears. . . . This pest is distinctly different from the European corn borer which now is established over the entire eastern half of Iowa.—*Successful Farming*.

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In dairy-cattle practice, the main concern is the fueling of a milk-producing machine without wrecking it.

## Equine Ulcerative Lymphangitis Recognized in Canada

The diagnosis of 6 cases of ulcerative lymphangitis in a herd of 11 horses in Saskatchewan by Mitchell and Walker\* is extremely interesting, inasmuch as that plague of agglomerated military horses has been practically forgotten since the days of the last war when the incidence ran high among horses and mules operating in muddy places during wet seasons. It was a horse plague of the Western Front.

In the early 1890's Preisz isolated a cocco-bacillus as the specific agent of caseous lymphadenitis of sheep and soon thereafter, Nocard found the same organism in a glanders-like disease affecting the legs of horses. The organism was named *Bacillus of Preisz-Nocard* and later misnamed *Corynebacterium ovis* by Bergey. The veterinary corps of World War I, in their official reports, designated the disease as ulcerative lymphangitis instead of the former name, Preisz-Nocard disease.

The Saskatchewan outbreak was quickly differentiated by the mallein and complement fixation tests and the bacteriological examinations. Morphologically, to the bacteriologist, the specific agents are not difficult to differentiate, no more so than the respective clinical tableaux are to the experienced eye. The cocco-bacillus of Preisz-Nocard (*C. ovis*) and the glanders bacillus of Pfeiffer (*Malleomyces mallei*) are not confusing, nor are the clinical entities. The pustules and supervening ulcers of farcy are small and quite uniform in size, while those of ulcerative lymphangitis are relatively large subcutaneous abscesses leaving, not spots, but patches of ulcerations. When one ulcer slowly cicatrizes (if it does so at all), a more virulent one, large as a soldier's cap, bursts out higher up—explosions, they have been called. The ulcerative process may last for months and even years. To the military veterinarian, Preisz-Nocard disease in horses is incurable. The epizootiology can be dismissed in one word—mud. The prognosis, so far as the prospect of reissuing the animal to the remount service is concerned, is unfavorable with-

out exception. The American veterinarian who has had the most experience with this disease, bacteriologically, is Dr. A. A. Leibold, who was the director of the veterinary research laboratory of the A. E. F. in 1918 at Neufchateau, and who quickly recognized the Preisz-Nocard organism in animals which had been isolated for glanders.

The Canadian outbreak of ulcerative lymphangitis in horses is interesting for two reasons: (1) It was not known that the equine form existed in North America, and (2) quickly recognizing the nature of the glanders-like disease at hand after twenty-five years of quiescence was "not so dumb."

Preisz-Nocard bacillus was renamed *Corynebacterium ovis* in error, since its most expressive action is in horses and mules. It was isolated from sheep in 1891 by Preisz and from horses in 1893 by Nocard, and was studied in sheep in this country by Mohler and Norgaard in 1899. Clinically, caseous lymphadenitis of sheep and goats, also called pseudotuberculosis, and equine ulcerative lymphangitis, although caused by the same specific agent, are in no manner similar and authorities are not in agreement as to its way of life. "Not very resistant," says one; "very resistant," says another, in speaking of its livability in the presence of different physical agencies.

What we are trying to say is that a somewhat mild, chronic malady of small ruminants and an explosive local infection of horses are caused by the same organism that appears to be quite ubiquitous and no doubt ever here to upset the calculations of the military veterinarian.

### Marine Corps Poultry Farm

To the farming operations of American armed forces in the Near East and North Africa (Dec. Journal, p. 408), add the 250-acre poultry farm of the Marine Corps at its training center in Parris Island, S. C. The farm, like the vegetable farm of the Veterinary Corps in France, was started during World War I. The Marine Corps poultry farm will soon have a hatching and brooding capacity for 2,100 chicks, according to *Poultry Tribune*.

\*Mitchell, Charles A., and Walker, R. V. L., Division of Animal Pathology, Science Service, Dominion Department of Agriculture, Hull, Que.: Preisz-Nocard Disease. *Canad. J. Comp. Med. & Vet. Sci.*, 8, (Jan. 1944): 3-10.



### A Notable Discovery: Milling Rice

The discovery of a method of driving and fixing the B vitamins in the hull of rice into the substance of the grain is pronounced "the most significant discovery of World War II." Dr. R. R. Williams, of the National Research Council, regards the conversion "the most feasible process for the improvement of the nutritional value of rice." Chemists of the University of Arkansas agree that the process may have far-reaching possibilities in stepping up the vitamin and mineral contents of wheat, barley and hominy grit.

The extent to which polished rice is deprived of its B vitamins is an old story. Little vitamin B remains in rice after the husk and skin are removed, and much of what is left goes out in cooking. The new milling process, perfected at a rice-milling plant in Houston, Texas, consists of extracting the air from the rice with a vacuum, forcing the vitamins of the hull into the substance of the grain with steam at high pressure, drying, and finally milling in the usual fashion. The result is a cream-colored rice that retains its vitamins in cooking. The plant (*loc. cit.*) is milling 200,000 pounds of rice per day thus converted. All is taken by the Army.—*From Reader's Digest for February, 1944.*

### Penetration of Ointment Bases

In a study of the penetrating power of 13 ointment bases, in man, petrolatum was lowest and liquid petrolatum-peanut-oil-steric acid-triethanolamine-acetyl alcohol and water was highest. Lard, lanolin and cod liver oil are rated fair. The ointment was rubbed into the skin at different sites and biopsies were made for study in fifteen minutes to twenty-four hours.—[*Abstr. J. Am. Pharm. A., 33, (Jan. 1944): 17-18.*]

If the therapeutic index of an ointment depends upon the penetrating property of its base, these facts have practical value in veterinary practice.

### Sulfonamides Not Harmless

The sum of knowledge about the sulfa drugs indicates that reckless usage is unwise and that selecting the right one for the right place is still open to improvements

in respect to dosage, method of application, and effective adjuncts. In fact, sulfa therapy has opened a broad field for study that remains incomplete in veterinary practice. In veterinary medicine, its use without professional guidance is ruled out.

### Anterior Lingual Actinomycosis Refractory

Writing on the sodium iodide treatment of actinomycosis of the tongue in the *Veterinary Record*, the author says: "In my experience, I have found that the site of the lesion has a great deal to do with these results, e.g., when the lesion is in the free anterior part of the tongue, I have found that no amount of sodium iodide intravenously injected will make any lasting impression on the condition but, that if the lesion is in the posterior fleshy part, one, or at the most two, injections of 1.5 oz. of sodium iodide will suffice to effect a cure."

### Four Atypical Cases of Anthrax\*

Lt. Col. Russell McNellis, V.C., U. S. Army, on duty in Peru, reports an outbreak of anthrax in 2 horses and 2 mules in which the clinical tableau resembled anthrax in swine and, moreover, lacked the characteristic tumefaction of the spleen which is rarely absent in solipeds, or cattle. The attack was ushered in by marked edema of the throat and neck down to the chest, giving the subjects the appearance of hippopotamuses; drooling, severe dyspnea, cyanosis, stiff neck, and small accelerated pulse. The autopsy revealed little evidence of the disease in the spleen, liver, intestines and kidneys, but marked blood infiltration of the connective tissue of the edematous region, larynx, pharynx, and trachea. All of the 4 cases resembled anthrax in hogs, except that the spleen was not swollen. The diagnosis was confirmed by staining smears taken from the affected tissues which were positive for *Bacillus anthracis*. Examinations of the splanchnic organs were negative. The infection was contracted from pasturing on ground that was contaminated years before by hogs known to have been affected with anthrax.

\*From the Bulletin of the U. S. Army Medical Department, 71, (Dec. 1943): 84-86.

### Acetonemia in a Sow

A case of ketosis in a sow, confirmed by laboratory studies is reported by H. R. Hester, D.V.M., Farmer City, Ill., in *Animal Pathology Exchange*, University of Illinois. The symptoms were inappetence, unsteady gait, rapid loss of weight, and the presence of ketone bodies in the urine and blood. The case is thought to be the first one of its kind in swine to occur in Illinois.

### Crystal-Violet in Hog-Cholera Control

A USDA release of February 12, 1944, announces that experimental tests on nearby farms conducted by workers of the BAI experiment station at Ames, Iowa, showed a promising place for crystal-violet vaccine and it sets down its advantages and disadvantages over the serum-virus method. It produces immunity slowly and of short duration, is not suitable in pigs farrowed on cholera-infected premises, where cholera is present, nor in garbage-fed hogs. These disadvantages are counterbalanced in part by the absence of systemic reaction, the loss of appetite and the infectiousness attributed to the use (or misuse) of serum and virus. Corroborative experiments conducted in England are mentioned.

### Avian Tuberculosis and Swine Breeding

A survey made in Kansas shows that 4,000 poultry flocks of that state are tuberculous, says *Poultry Tribune*. The fact itself would not be serious were it not a barometer of a situation affecting a much greater territory. Federal meat inspection in 1942 seized around 8 per cent of the hogs slaughtered under its supervision at a cost to American farmers estimated to be between 3 and 4 billion dollars, or around 14 billion pounds of pork. Most of this is chargeable to avian tuberculosis since condemnations for bovine tuberculosis have declined to a low level. At least 90 per cent of the swine tuberculosis is contracted from chickens, responsible authorities declare, and the incidence seems to remain stubbornly at that high rate, meaning that nothing effective is being done to change matters if the figures are at all reliable. The

scientific fact that the tuberculous chicken does not directly transmit Koch's bacillus to the human being does not mitigate the losses suffered in less direct ways. The billion dollar poultry industry is not as much to blame as the swine breeder, since most of the avian tuberculosis is right in the chicken coop of his own farm.

### Chemical Depilation of Hog Carcasses

Scalding hogs as a means of removing the bristles, familiar part of the slaughtering process, may soon be replaced by the use of a depilatory plastic into which the carcass is plunged. The carcass is submerged in a tank of sticky liquid plastic. When removed the hair peels off clean and complete—not a stubble is left. The material is a proprietary resin chemical. The method is economical and thorough.—*Science Digest*.

### Feeding Animals a Complex Scientific Problem

The nutritional needs of animals during the different stages of their lives (neonatal, infant, youth, adolescent, adult) change with each stage. Moreover, the animals intended solely to augment the food poundage (market hogs, beef cattle, lambs, broilers) which are slaughtered before, or early after, maturity differ in nutritive requirements from animals raised for use as adults (dairy cows, horses and mules, breeding sires and dams, laying fowl). In human nutrition, the rapidity of growth and weight gains such as the food-producers attempt to attain would be pronounced detrimental to adult health and longevity, meaning that the nutrition of an animal destined to adult usage should be different, right from the start, from the one going to the abattoir as soon as expedient. Desirable as size and weight are in the one group, they may perhaps reflect adversely on the normalcy of adult performance in the other group, as human nutritionists would suspect. Mobilizing growth power and the capacity to deposit fat is a strain on the organic stability and equilibrium of the finished product—the adult.

### Bovine Tuberculosis: Clinical Diagnosis

Since advanced cases of tuberculosis in cattle are rare in this country, the knack of detecting the disease by physical examination has become a lost art in the field of practice. It was, therefore, interesting to read an abstract on the subject in the *American Review of Tuberculosis*, reminding one that tuberculosis in cattle is frequently pulmonary and creeps on insidiously, causes cough, loss of weight, anemia, fever, cachexia, meteorism, constipation or diarrhea, secondary adenitis of the adjacent lymph nodes; that in 50 per cent of tuberculous cows the udder is involved, and that intestinal localization is rare. But, continues the author, "clinical diagnosis is of no importance since tuberculin testing is done generally."

### Ingestion Tuberculosis

Because tuberculosis progresses slowly, the manner of acquiring the infection is difficult to prove, so difficult in fact that authors still feel called upon to quote opinions from 'way back when. Whether pulmonary tuberculosis is acquired by inhalation only or results from ingested organisms filtering through the intestinal mucosa remains as unsettled as whether intestinal tuberculosis may be secondary to an initial pulmonary localization. The investigations of Ravenel (1903) and of the Great Britain Royal Commission (1904) are still quoted by the phthisiologists in 1944. Calmette and Guérin, of BCG fame, have contended since 1905 that pulmonary tuberculosis is caused by bacilli ingested and absorbed without leaving a trace of mucosal injury and that seems to make sense in veterinary medicine. Animals suffer from intestinal tuberculosis for a long while without showing any trace of illness.

### Iodine Deficiency in Pigs

Pigs born dead, hairless, or too weak to nurse or without mature hoofs, are probably victims of iodine deficiency, especially in the Goiter Belt during the winter and spring. Lack of iodine in the ration of the sows is, at least, to be considered when a

succession of these reproductive accidents occurs. The remedy is the feeding of potassium iodide to the pregnant sows at the rate of 0.2 Gm. (= 3 gr.) per week, according to the Department of Animal Pathology and Hygiene of the University of Illinois. A more far-reaching question, however, is whether all brood sows of the Goiter Belt fed on home-grown feed should be continuously iodized. That question seems to be open.

### Incubator Waste a Rich Source of Feed and Fat

Commercial hatcheries can make good use of infertile eggs and dead embryos, provided the eggs are boiled for no less than fifteen minutes to destroy the flora they may contain. These wasted eggs, when dried and ground, may be used to replace mixtures of dried skim milk, fish meal and meat-and-bone scraps, in feeding chicks. Through experiments conducted at the Beltsville Research Center in 1937-1938, it was estimated that 9,000 tons of the dried contents would yield 6,000 tons of an animal protein supplement containing 70 per cent of protein besides 3,000 tons of fat for industrial use. Eggs incubated from one to eighteen days were found to be useful for the purpose.

### Rabies: Revaccination of the Bitten

In reply to a query as to the duration of protection in persons immunized against rabies, the "Queries and Minor Notes", column of the *Journal of the American Medical Association*, says: "Not known," and advises revaccination even in patients bitten again in a short time. The second bite may be more dangerous than the first one. Judging from other specific vaccinations, it may seem reasonable that the immunity may last several months, at least, but on account of a variety of factors concerned, there may be a great variability of effective persistence of the protection, the answer declares. In view of frequent exposures in the practice of veterinary medicine, the reply commands attention.



# NUTRITION

MATERIAL FURNISHED BY THE COMMITTEE ON NUTRITION

## Excerpts from the Report of the Special Committee on Nutrition of the Illinois State Veterinary Medical Association

THE SCIENCE of nutrition has advanced so rapidly that it has been difficult for the busy practitioner to keep fully informed. However, it must be recognized that maximal professional service cannot be rendered without up-to-date knowledge of animal nutrition, including an understanding of the composition of the common livestock feeds. Without such knowledge, it is not possible to diagnose naturally-occurring deficiency diseases and to recommend proper measures for their correction and prevention.

Before considering the immediate problems of nutritional diseases that veterinarians may have to cope with in 1944, your committee believes it is worth while to review some of the newer knowledge in nutrition.

### NEWER KNOWLEDGE IN NUTRITION

In the most comprehensive investigation yet undertaken on the etiology and pathology of pregnancy disease (ketosis) of ewes, Groenewald, Graf, Bekker, Malan, and Clark (1941) of the Onderstepoort Laboratory of Veterinary Science and Animal Industry, Union of South Africa, have shown conclusively that this disease is caused by a semistarvation ration or by sudden reduction of an adequate ration. These investigators state, "Many of the suggested causes, such as mineral deficiency, toxic absorption from the uterus, and lack of exercise, can be discarded. Age, overfatness, and changes in the climatic or feeding conditions can be looked upon as predisposing or indirect causes. The disease

is essentially a disturbance of metabolism, especially with regard to the carbohydrates, and this is usually manifested by a loss of body weight. Pregnancy is a powerful predisposing cause and acts through the increased drainage on the maternal system." Groenewald and associates made the interesting observation that the same condition could be produced in nonpregnant ewes, "but a much longer period on the poor diet was necessary than in the pregnant ewes." —*Onderstepoort Journal*, 17, 1941: 225.

A number of investigators, namely, Sutton, Krauss, and Hansard; Moore; and Madsen, Hall, and Converse, have reported that cysts are often found in the pituitary glands of young cattle affected with vitamin A deficiency. Madsen and coworkers found cysts in the pituitary glands taken from 13 of 15 young beef and dairy animals known to have suffered from vitamin A deficiency. The probable significance of these observations is shown by the fact that only four or five cystic pituitary glands were found in 10,000 pituitary glands collected from apparently normal cattle.—*Nutrition Reviews*, 1, 1943: 335.

Boyer, Phillips, Lundquist, Jensen, and Rupel of the Wisconsin Agricultural Experiment Station have shown that a concentration of 10  $\mu$ g. of vitamin A or more per 100 cc. of blood is necessary to insure adequate vitamin A nutrition in young, growing dairy calves. Concentrations of less than seven  $\mu$ g. per 100 cc. of blood soon lead to symptoms of A deficiency. An intake of 18  $\mu$ g. of vitamin A or more per kg. of body weight was found to be necessary to maintain the A content of the blood at 10 or more  $\mu$ g. per 100 cc. It was also shown by these investigators that the amount of

Presented at the sixty-second annual meeting of the Illinois State Veterinary Medical Association, Springfield, Jan. 20-21, 1944.

crystalline carotene or alfalfa carotene (provitamin A) necessary to maintain an adequate level of vitamin A in the blood of dairy calves is five to eight times greater than vitamin A itself. A level of 70 to 140  $\mu$ g. of carotene per 100 cc. of plasma was necessary to maintain an adequate content of vitamin A in the blood of dairy calves.—*Nutrition Reviews*, 1, 1942: 44.

Thorp, of Pennsylvania State College, does not dispute the claim made by Phillips and coworkers of the Wisconsin Station that vitamins A and B are essential in the calf's diet, but he finds that scours and pneumonia in young calves, particularly in day-old calves, cannot be eliminated by the use of these vitamins. Thorp and coworkers found that, in herds where calf scours was a serious problem, the incidence and severity of the disease could be reduced by regulating the intake of the dam's milk.—*Am. J. Vet. Res.*, 4, 1943: 375.

Lundquist and Phillips (Wisconsin) state that, in addition to vitamin A and niacin, vitamin C appears to be an essential of the diet of the young calf. Vitamin C seems to be beneficial in protecting newborn calves from navel ill, peritonitis, and other active infections. A blood plasma level of 0.15 mg. per cent or less of vitamin C accompanied by active infection often results in inflammation of the navel and peritonitis. Vitamin C appears to be helpful in treating these infections.—*J. Dairy Sci.*, 26, 1943: 1023.

Workers at the Wisconsin Station have found that the niacin requirement for mature dogs ranges from 200 to 225  $\mu$ g. per kilo of body weight. For the growing dog, the requirement is 50 to 75 per cent higher.—*Nutrition Reviews*, 1, 1943: 68.

Briggs, Mills, Elvehjem, and Hart have found that chicks have a definite need for niacin. A deficiency of this factor in the ration of chicks causes symptoms similar to those observed in black tongue in the dog and pellagra in man. The amount of preformed niacin required to prevent "black tongue" in chicks was 0.5 mg. per 100 Gm. of ration; to promote growth, 1.8 mg. per 100 Gm. of ration. The lesions associated with "black tongue" in chicks are characterized by inflammation of the entire mouth cavity and upper part of the oesophagus and crop.—*Nutrition Reviews*, 1, 1943: 172.

In a discussion on "Parenteral Feeding" of man, attention is called to the suggestion made by Spies that when large amounts of d-glucose are injected, 50 mg. of niacinamide, 7.5 mg. of riboflavin and 5 mg. of thiamin be included. This well-known physician also recommends that sometimes it is desirable to inject 50 mg. of ascorbic acid in 0.9 per cent saline. The reason for augmenting glucose is found in the recognized importance of the B vitamins in metabolism of the major foodstuffs.—*Nutrition Reviews*, 1, 1943: 379.

Bohstedt of Wisconsin emphasizes the importance of properly feeding dry cows. According to this authority, dairymen should be warned "to give cows a reasonably long dry period and during that time to give them every chance, by way of quality feeds, to store the invisible reserves, the minerals and vitamins, and to put fat on their bodies."—(*Proc. 3rd Nutr. Conf. for Vet.*, Decatur, Ind., July 7, 1943). Dr. Bohstedt might have added that proper feeding during pregnancy, particularly during the latter part of pregnancy, provides an opportunity for the liver to maintain a moderate supply of glycogen which appears to be essential for the prevention of ketosis at the onset of lactation.

According to Mitchell (University of Illinois), "Available evidence rather clearly demonstrates that the great effectiveness of animal protein concentrates in promoting maximal production in swine and particularly in poultry is not due primarily to their protein constituents, but rather to their higher content of certain vitamins, of calcium, of phosphorus, and possibly of some of the micronutrients. Hence, the substitution, in whole or in part, of such animal protein feeds as are unavailable under present conditions, or prohibitive in cost, by vegetable protein concentrates is possible provided proper adjustments are made in the ration to correct vitamin and mineral deficiencies that are thus incurred. When the substitution is made, the protein content of the ration should be raised one fourth to allow for less efficient protein utilization."—*Ninth Report of the Committee on Animal Nutrition, National Research Council*, No. 117, May, 1943.

Hurt (1941) observed that losses of suckling pigs three to five days after birth, from a disease referred to as "three day

disease," were much less severe after hog raisers supplemented garbage, fed to pregnant sows, with grain and allowed sows more exercise before farrowing time.—1941 *Ann. Rept. Los Angeles County, Livestock Dept.*

Graham and associates, of the Illinois Agricultural Experiment Station, have shown that so-called "baby-pig disease," which in certain respects resembles "three day disease," described by Hurt in newborn pigs, is characterized by severe hypoglycemia and coma.—*Proc. Soc. Exptl. Biol. & Med.*, 67, 1941: 338.

Sampson, Hester, and Graham (Illinois) have found that starvation causes rapid (48 to 72 hours) and intense hypoglycemia in newborn pigs, whereas a much longer period (ordinarily 150 or more hours) of starvation is necessary to cause dangerous hypoglycemia in pigs that are about 1 week old.—*J. A. V. M. A.*, 100, 1942: 33.

Krauss and associates, Ohio Agricultural Experiment Station, believe recent studies tend to bear out the results of earlier observations that feeding irradiated yeast to dairy cows is beneficial in preventing milk fever in Jerseys. In Jerseys, 17.1 per cent of 35 freshenings in a yeast-fed group and 37.5 per cent of 32 freshenings in a non-yeast-fed group resulted in milk fever. When all breeds are considered, the evidence is not so favorable for yeast feeding, *e. g.*, 19 per cent of 58 parturitions in the yeast-fed group and 20 per cent of 60 parturitions in the nonyeast-fed group resulted in milk fever. The vitamin D content of Jersey blood decreases markedly just before parturition, whereas it does not show this decrease in Holstein-Friesians.—*J. Dairy Sci.*, 26, 1943: 753.

## NUTRITION PROBLEMS IN 1944

### Large Animals

**Inanition.**—The relative scarcity of feed in relation to the tremendous number of livestock, especially cattle, swine, and poultry, will undoubtedly be accompanied by an increase in the number that succumb either directly or indirectly to the deleterious effects of underfeeding. Starvation or semi-starvation therefore, can be expected as an important contributing factor to losses of livestock in 1944 and must be given careful consideration in many diagnoses.

**Protein.**—The national emergency has created a shortage of all feed supplies, especially protein supplements. Of the latter, animal proteins have been affected most. Some practitioners believe that the change from animal to almost total plant sources of protein supplements has increased the incidence of disease, particularly in young, growing animals. It seems highly probable that on some farms slow growth in pigs has been due either to too little protein or perhaps a lack of certain vitamins in the protein supplement. Unthrifty pigs are easily parasitized and some fall victims to the multitude of pathogens that are ever present on the average cornbelt farm. Illinois farmers will have to depend largely on plant proteins in 1944, and veterinarians should remember the warning by Dr. H. H. Mitchell, namely, that plant proteins cannot be expected to be as satisfactory for certain classes of animals, especially poultry and swine, unless certain vitamin and mineral deficiencies are met by using additional feeds which provide adequate amounts of these nutrients. Some of these nutrients can be supplied by good quality alfalfa hay.

**Carbohydrates.**—There is a shortage of roughage, both in quantity and quality, on many Illinois farms. The high price of grain will be an inducement for many farmers to reduce the amounts of energy foodstuffs, roughage, and grain fed to dairy cattle and sheep. Practitioners should, therefore, be on the alert for an increase in the number of cases of ketosis in ewes and cows.

**Vitamin A Deficiency.**—Reference has already been made to the shortage of roughage in Illinois. This fact alone may be responsible for cases of anasarca or vitamin A deficiency in cattle during the winter and early spring months of 1944. Much of the hay on hand is of low quality. Practitioners should check the ration carefully when symptoms suggestive of vitamin A deficiency are observed in beef or dairy herds, particularly in herds of high-producing dairy cows.

**Ketosis in Sows.**—Ketosis in swine appears to be restricted to sows. To date, it has been observed in sows that have far-



rowed, but it probably also occurs during pregnancy, especially during the latter stages of pregnancy. Dr. H. R. Hester is of the opinion that some cases of ketosis in sows have been diagnosed as milk fever. Practitioners can contribute valuable information to our knowledge of ketosis in swine by reporting cases diagnosed in sows during the 1944 farrowing season. Glucose therapy appears to be effective treatment. The urine test for ketone bodies is helpful in diagnosis.

**Minerals.**—The minerals most likely to be lacking in rations fed to livestock in Illinois are calcium and phosphorus. Protein supplements composed largely of plant sources, unless fortified with limestone or bone meal, are deficient in calcium. It is probable that the switch from animal to plant protein supplements was partly responsible for some of the mineral deficiencies observed in swine herds during 1943. High-grade limestone is a good source of calcium, while steamed bone meal is an excellent source of both calcium and phosphorus. The scarcity of bone meal and animal protein complicates the problem of phosphorus requirements. Wheat bran is an excellent source of phosphorus while legume roughages and legume seeds are a fair source of this important mineral. The simple mineral mixture recommended by the University of Illinois, consisting of 40 parts of high-grade limestone, 40 parts steamed bone meal, and 20 parts salt, continues to be popular with many Illinois swine producers.

Losses continue to occur among suckling pigs from pig anemia or iron deficiency. Sow's milk is very deficient in iron and cannot be enriched by feeding iron compounds to the sow. Pig anemia is often observed during the late fall, winter and early spring months in pigs farrowed in a colony house with wooden or cement floors. Probably the simplest method of prevention is that recommended by the Purdue University Station, Lafayette, Ind., which consists of allowing the pigs free access to several shovelfuls of sod placed in a box. The sod should be free from worm eggs. Greater protection is assured if each half bushel of soil is enriched with the following solution:

Iron (ferrous sulfate).....	10.0 Gm.
Copper sulfate .....	1.5 Gm.
Water .....	1.0 pint

A saturated solution of ferrous sulfate can be applied to the udder daily with a swab or brush, if the soil method is not followed. The "swab technique" has been used successfully in many herds, including the swine herd belonging to the University of Illinois.

**Water.**—Water is so important that practitioners should continue to emphasize the need of a plentiful supply of clean wholesome drinking water for all classes of livestock. During the winter months, it is always desirable to provide some means of taking the chill off and preventing it from freezing.

### Small Animals

The house pet has fared much better so far in the war than was believed possible by most of us.

In February, 1943, the War Production Board made drastic cuts in the animal protein of pet animal foods, cutting it down to a maximum of 8 per cent. Had it not been for the quick action of the Joint Committee on Foods of the AVMA and AAHA, all the animal protein might have been removed.

The dry commercial food is working out satisfactorily for feeding of most breeds of dogs if it is soaked in hot water or milk. The palatability and digestibility of dry food is improved by adding 1 to 2 tablespoons of hot fat just before feeding.

It has also been found that the starch molecule of the dry food is perhaps more completely digested in the dog if it is soaked for twelve hours before feeding.

Toy breeds and cats must have some meat but there has been an ample supply of horse meat in most areas. Veterinarians should recall that Dr. Chas. W. Bower, president of the AVMA, suggested that no rationed canned foods need be used for pet feeding as good diets can be maintained without them.

J. SAMPSON, *Chairman*,  
GLEN D. GROGAN,  
C. C. HASTINGS,  
R. E. RUGGLES.

## Wheat Position and Outlook

Wheat is a basic foodstuff in almost all of the western world. It is the prime bulwark against food-calorie shortage in the free United Nations. It is the most important key to relief of stark hunger in widening liberated areas of the Soviet Union and Continental Europe. Early and effective coördination of the utilization of wheat supplies is absolutely vital to successful food management in 1944.

In the four great wheat-exporting countries—Canada, Argentina, Australia, and the United States—wheat has been unprecedentedly abundant. With the export flow severely restricted under war conditions, increasing amounts of surplus wheat have been diverted to feed use, to industrial alcohol manufacture, and, in Argentina this year, to fuel use. In these countries, these nonfood uses will absorb, in this crop year, about as much wheat as will be eaten and sown. The diversion has gained momentum and is not easily cut back. With the true surplus approaching exhaustion, nonfood uses should be curtailed in order to insure reserves ample both to provide for heavy shipments to Europe and to offset the probability of reduced yields in 1944.

To achieve this will require effectual restraints on the flow of wheat into feed use, especially in the United States, and persistent pressures for orderly reduction in numbers of livestock, which cannot be maintained on the combined feed resources without endangering food reserves. There is also urgent need for increasing replacement of grain by molasses and other materials for industrial alcohol manufacture, and for shipment of coal to Argentina to permit cessation of the burning of wheat. It is likewise important that arrangements be made for constituting substantial reserves of wheat and flour ready to be poured into relief channels.

Agencies for coördinated decision and action exist. We are not fully informed as to how far they have succeeded in assembling essential information and making essential decisions, but it is clear that delays in action persist. The Food and Nutrition Board of the National Research Council urges its conviction that further delays

will be attended with grave risks, and that the public, here and abroad, needs early assurance that appropriate decisions have actually been reached and that timely steps are being taken to meet the requirements of the situation.

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## The Leather Shortage

In a letter to state specialists, C. D. Lowe, senior extension animal husbandman, USDA, states that leather is one of the scarcest essential commodities and that there is no relief in sight except loss prevention. Because the other countries of the United Nations are more dependent on foreign procurements than we, larger importations cannot be expected. Warbles (grubs), deep branding, and careless skinning, all preventable to a considerable extent, contribute to the shortage.

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## The A.M.A. Annual Session

In lieu of roaming to far-away places, the American Medical Association will again hold its 1944 session in Chicago. The date is June 12-16. The meeting of the House of Delegates, the scientific exhibits, and the opening session will be held at the Palmer House. Registration and technical exhibits will be in the Stevens Hotel and there will be section meetings at the Hotel Sherman and Morrison Hotel. A feature of the session will be a national medical war meeting presenting distinguished delegates of the military services of the United Nations.

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## Better Milk Program

The London correspondent to the J.A. M.A. writes: "The government has decided on a progressive policy for the improvement of the milk supply. The basis of sound milk policy must be a well-bred, healthy herd. It is proposed to arrange for a minimum of one inspection each year of every dairy herd and to inspect more frequently those herds with a bad disease history, or where the milk has not been heat treated before sale. Owing to transport difficulties, much of the tuberculin-tested milk now produced is bulked with ordinary milk. To encourage the production of this valuable milk, the government proposes a uniform production premium of 8 cents a gallon. . ."

Statement adopted Jan. 29, 1944, by the Food and Nutrition Board, National Research Council, Washington, D. C.

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# EDITORIAL

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## Our Sanitary Measures Unjust?

*La Res*, top-rank livestock journal of Argentina, uses a whole page of an issue to acknowledge the advantage which the methods of Dr. John R. Mohler, retired chief of the United States Bureau of Animal Industry, brought to the livestock industry of his country. "There is no more foot-and-mouth disease in the U.S.," says *La Res*, "and a large part of the credit of this result goes to him." But, this paper goes on to say, "On more than one occasion the defense of the legitimate interests of Argentine meat has induced us to take up a struggle against the particular consequences of Dr. Mohler's sanitary protection" which is "*an unnecessarily extensive and indiscriminate application of sanitary means . . . We have no grounds at all for changing our standpoint.*" In these italics lie diametrically opposite points of view on a world-wide issue. The one *assumes*, the other *eschews* the application of scientific medicine to their respective livestock-disease problems.

Neither do we have grounds for changing our standpoint. The principle involved reaches far beyond foot-and-mouth disease. It involves the welfare of those who *work* the land, not only the landlords who *own* it. The John R. Mohler method of livestock sanitation affects everyone from the smallest share cropper of the Ozarks to the ranchers of the big "Out West," and every farmer in between, not to mention all the rest of the American people from the cradle to the grave. If a country chooses to live with, instead of to master diseases of its animals, that's its own business, provided it doesn't jeopardize the property of its neighbors, and perhaps, in time, that of the whole world.

When a veterinary service sets out to control diseases of livestock, it expects to meet considerable opposition, some well meant, some just selfish. That's democracy in action. *La Res* knows that too well to throw wet blankets on livestock-disease con-

trol, so it pays tribute to Dr. Mohler adding: "We are glad to render homage to a great North American public official who has rendered such signal service to animal and public health and has been a leader in the greatest sanitation campaigns known to date." Is that a confession? The war on brutal disease is like war on brutal nations. To take no chance of losing, it must be "unnecessarily extensive" and "indiscriminate" in spots. The awry pathology of disease does not yield to convenient appeasement. The fighter of disease has no patience with appeasers except, with tongue in cheek, as a means to his ends. If our livestock sanitary regulations are inconvenient to other countries, they are not "unjust." They are more like a lesson on food production and national welfare (perhaps world welfare) for this and for coming generations. While our veterinary service is far from being what we would like, it is our conviction that some of our neighbors dote too much on international trade in their animal products and too little on the reason we do not need their food and why we cannot afford to let down the bars to the disease of livestock which they do not control, because the animal-disease factor in some parts of the 1944 world is a political instead of a scientific question. Trade seldom ever tries to make peace with science until a shooting war comes along.

The veterinary profession has to be charitable to all neighbors in this respect since the purpose of John R. Mohler's war on farm-animal diseases is little understood among the general population of our own country. In the march of man, animal disease is still an unseen obstacle; where animals multiply in spite of disease, abundance is a veritable blinder. The trebling of the world's population in recent decades and the rapid depletion of the soil, pointed out by farseeing minds, are destined to make the Argentine beef quarrel seem like a very small tempest in a very little tea pot. In



the perspective lies the animal-disease problem, a problem that can pass rapidly beyond human control. It's not unjust to prevent that.

### Our Health in Wartime: Farming and Animals to the Rescue

Dr. Louis I. Dublin, statistician for the Metropolitan Life Insurance Company, credited with having an unusual grasp of the present health picture, analyzes the situation in a carefully prepared article published in the February (1944) issue of *Harper's Magazine*, saying that all-in-all, the wartime health in our country "looks very satisfactory" and that the British who are close to the theater of operations are "enjoying good health conditions."

In the other countries, and we quote, "The frightful increases in civilian mortality in Europe have occurred despite the fact that, so far, there have been no widespread epidemics. There is a constant source of danger in people weakened by famine who would be easy prey for any of a number of infectious diseases. If a major epidemic gets a start it would be difficult, if not impossible, to control it. It is highly probable that it would sweep through populations, building up virulence, and it might then extend to the rest of the world." Facts gathered from France, the Low Countries, Poland, and the Balkans are the bases of Dr. Dublin's thesis.

Lest these pessimistic reports be misleading, the credit side of the food ledger gets attention also. At the meeting of the National Farm Institute at Des Moines in February, Eric Englund, chief administrator of the Office of Foreign Agricultural Relations, while admitting that the food situation was critical in spots (Greece, France, Norway and parts of Russia), stated that there is more food being produced in Europe than ever before in history and that agriculture there is doing a better job than commonly realized. The production (and here is the crux) has been shifted to grain and away from meat, milk, eggs, and poultry; this is the trend of the human dietary, war or no war. The talk one hears of this transformation in this country is a cue for veterinarians to save animal life to postpone the change, for when an animal dies or is little more than

a "boarder" it represents the loss of a lot of human food.

The trend from animal products to cereals is real and as the land becomes more and more depleted, the plot thickens, for the reason that dependence on agricultural science and labor-saving inventions is false security. Science and invention have increased agricultural production but they cannot take from the land what is not there. The USDA year book for 1938 says we are little more than maintaining crop yields in spite of remarkable advances in agricultural science and machinery. To what extent the replacement of horses by motor power is responsible, is at least debatable, but in any event, from the economic point of view, the amount of grain required to produce a given amount of red meat would nourish more persons than the meat. In other words, meat transformed from grain is a luxury—a waste of calories and protein. What is meant by "the plot thickens" is that increased density of population goes hand in hand with increased grain consumption, or *vice versa*, because were the grain all fed to animals there would not be enough meat to go around. Hence, as populations become more dense, animals become relatively fewer. In longtime planning, veterinary science should not overlook this basic fact. Not to do so is to ignore an immutable biological law. The pay off is that the trend is toward lower standards of living which can best be postponed by making it profitable to raise meat, milk and egg producers, in other words, maintain animal and poultry health at the highest possible level. That is the place veterinary science occupies in the world of today even though but a minority of its population is aware of the fact.

### Veterinary Journals as War Rages

Volume II, No. 2 of *Revue des Sciences Médicales, Pharmaceutiques, et Vétérinaires de L'Afrique Française Libre* published at Brazzaville, West Africa, March, 1943, has just arrived. The founding of this journal (review) was mentioned editorially in our May, 1943, issue on the arrival of the July, 1942, issue, designated Volume 1, No. 1. The object was to point out the viability of, scientific veterinary literature even as war is raging and obstacles

are great. Each issue contains 96 pages and the last one has five color plates illustrating a classical article on tropical parasites pathogenic for animals—proof of careful presentation of scientific facts and the value placed upon them, even as war rages around and within a badly broken down empire. Obviously, in Equatorial West Africa there is no paper shortage sufficiently acute to curtail the publication of material pertaining to the main source of the human dietary.

### Testimonials in Advertisements

Let us speak plainly and debate in open forum about disapproving the use of testimonials in the JOURNAL regardless of their source. First of all, we advise veterinarians not to write testimonials for anyone. They blemish the professional reputation of the writer, to a little extent at least, and we question their value to the advertiser, very much indeed. The testimonial type of advertisement in a veterinary journal raises a question comparable to the relative gullibility of the radio audience (mental average said to be that of 14-year olds) and the professional man. We know and you know that veterinarians are swayed by what their colleagues say in the reader columns or at the meetings of their societies, but we question very much that they are moved at all, or swung in the direction desired, when the same things are told through the testimonial of an advertisement that tends to lower the standards of both the writer and his profession. Moreover, it is contrary to the Code of Ethics for AVMA members to write testimonials as to the virtue of proprietary remedies or foods except to report the results of properly controlled experiments or clinical studies.

Secondly, the testimonial type of advertisement belongs to the rust of antiquity—to the old patent medicines that were claimed to cure consumption, cancer, rheumatism, and kidney disease in a jiffy, according to the pictorial advertisement of newspapers and magazines before the days of the Food and Drug Administration and the voluntarily improved ethics of the publishers, thanks to them.

A survey of advertising practices since the turn of the century shows that testimonials have been gradually outmoded in secular, scientific, and professional periodicals.

If the veterinarian will give a thought to the cause of this mutation, our disapproval of the testimonial type of advertisement will be better understood.

Of all the professions, ours can least afford to be vulnerable in this or other respects which tend to belittle the veterinarian or the profession, and this we say with frankness born of good intentions toward all concerned.

### The Cornbelt of the U. S. A.

The area called the Cornbelt produced nearly 100,000,000 hogs in 1943, added a tremendous food poundage to the national dietary, furnished millions of pounds of essential fats, and proved that "corn is king." The volume of grain alcohol and beverage liquor made from corn, the prospect of alcohol supplementing motor fuel, and now the making of butadiene from corn alcohol in synthetic rubber production are additional proofs that the Louisiana Purchase in 1803 was a pretty good bargain. The preservation of the rich soil of the Cornbelt through the raising of livestock and obedience to the doctrines of agricultural science otherwise, is a "must" of the top rank in maintaining the strength of the U.S.A., and this we say without prejudice for the other "belts" encapsulated by the international boundaries.

### Veterinary Medicine Materialistic

Veterinary medicine is a combination of science, art, and economy inseparably fused. Any attempt to practice that branch of human work or approach it from any flank cannot eschew any one of the three components and be successful. Setting aside the knowledge and skill required, there is always an economic question to weigh, and not to weigh it carefully is not to accomplish what the veterinary profession has set out to do. We are more swayed by the livestock market, the field sow thistle, the corn borer, and the issues in Congress than we are apt to think.

Beef shipped to oversea troops is boneless, to reduce shipping space and incidentally to make much needed bone meal for feed and fertilizer.

# CURRENT LITERATURE

## ABSTRACTS

### The Veterinary Outlook

Under this title is an editorial in *The Lancet* which points out how World War II has again made the British people conscious of their dependence upon the soil and livestock—upon arable farming and farm-animal production in "these highly industrial islands," and upon the vital matter of animal health. Though the more sweeping animal plagues have been mastered, the less spectacular, chronic infections are harder to control. Mastitis, abortion disease and sterility deprive the country of 200 million gallons of milk per annum, cause the death of calves, and cost £5,000,000 a year for replacements. The figures are quoted from reports of the National Veterinary Medical Association. A notable change is the farmers' increasing appreciation of the veterinarian's service and his difficulties.

The plan on foot of improving the nation's milk supply attaches great importance upon herd improvement and disease control, as in South Africa where the veterinary service holds itself responsible for animal husbandry and nutrition. The Veterinary Education Trust, which proposes to raise £1,000,000 for research and graduate work, is commended. Veterinary officers are intended to become responsible for conditions under which milk is produced (as is done in the armed forces of the USA).—

*Editorial, The Lancet, Jan. 29, 1944.*

### Vitamer or Isotel or Both?

*Vitamer* was coined to designate forms of vitamins that can replace one another; in other words, that part of the diet having the specific effect of another regardless of its chemical make-up, which is quite different from the proposed *isotel*, or food factor, that can replace another in a given nutrient medium for some specified species, or under a given set of circumstances. Thus, carotene is the *isotel* of vitamin A for most animals but not for the cat which cannot convert it.

*Vitamer A*, for example, is any factor that provides the same effect as vitamin A, regardless of its nature. If the cat can make use of but one substance, there is no *isotel* for vitamin A in that species. The *isotel* for carbohydrate

would be starch for man and cellulose for rabbits or ruminants; cobalt and manganese for activating enzymes and so on through all classes of food factors. The *vitamer* differs mainly in being more complex. The pellagra preventing factor is an example of a *vitamer*. Both terms seem to have their place in the science of nutrition.—[*Royal Lee, Lee Foundation of Nutritional Research: Vitamer or Isotel? Both? Science, 99, (Jan. 21, 1944): 58.*]

### Coccidiosis of Chickens and Feeding Methods

The amount of feed in the digestive tract appears to be a factor in the spreading of coccidiosis in chickens since in experiments conducted to test relative resistance, chickens having access to feed continuously were found to be more resistant. The measured difference in deaths was 1:2.78 in the two experimental groups: one infected while the crop was empty and the other while it was full. On range, the death ratio was 1:8.1 for the first fourteen days and 1:2.26, later. The conclusion was that the presence of feed in the digestive tract of fowl at the time they are infected with oöcysts increases resistance to coccidiosis.—[*S. A. Edgar and A. C. Herrick, University of Wisconsin: Feeding Habits in Relation to the Severity of Cecal Coccidiosis—Eimeria Tenella. Poultry Science, 23, (1944): 30-35.*]

### Infections Following Injury to the Bovine Udder

A bacteriological study of 317 injured quarters revealed that 283 (89%) were infected, as compared with 14 per cent of 3,560 chosen at random. Most of the injuries not followed by infection did not involve the teat, yet despite negative bacteriological findings, symptoms of mastitis were sometimes marked. The organisms present in the 283 cases were: *Streptococcus agalactiae* (24%), *Streptococcus dysgalactiae* (23%), *Streptococcus uberis* (15%), other streptococci (10%), *Corynebacterium pyogenes* (6%), coliform organisms (2%), and mixed infections (7%), and these were compared with the flora of acute, subacute,



and chronic bovine mastitis. In herds known to be free from the *S. agalactiae* type of mastitis, that organism was not found in the traumatised quarters.—[Jean Ferguson, Ph.D., Cornell University: *A Bacteriological Study of Infections which Follow Injury to the Bovine Udder*. *Am. J. Vet. Res.*, 5, (Jan. 1944): 87-92.]

### Leishmaniasis in North African Dogs: Transmission to Mosquitos

The natural infection of mosquitos of the genus *Phlebotomus* by general leishmaniasis in dogs was studied by Parrot, Donatien and Plantureux of the Pasteur Institute of Algeria. From June 5 to Oct. 23, 1940, collections of *Phlebotomus* were made at kennels housing dogs suffering from advanced leishmaniasis. Of 1,142 female mosquitos taken, 1,090 were of the species *pernicius*, Newst, and *longicuspis*, Nitzu, which cannot be distinguished from each other alive. The two species were most abundant in June and early July and again late in September and early October. Of the engorged females dissected, 250 proved to be *P. perniciosus*, 248 *P. longicuspis*, 7 *P. sergenti*, Parr, and 3 *Ariasi tonn*. No infection was found in the last 2, but 50 of *P. perniciosus* and 41 *P. longicuspis* had the flagellate form of *Leishmania* in their digestive tract. Infection was present through the season but was highest in June, and, for the most part the flagellates were found in the proventriculus or just anterior thereto. Hereditary transmission was excluded by raising sandflies from 124 of the specimens. [*Sur l'infection naturelle des phlebotomes par la leishmaniose générale de l'homme et du chien en Algérie*. *Arch. Inst. Pasteur Algérie*. *Abstr. Rev. Applied Entomol.* 31, (Dec. 1943): 241-242.]

### Urinary Calculi in the Dog

Urinary stones with special reference to the cystine type is the title of a study made at the Royal Veterinary College, London. The author points out that knowledge of the composition of the stones is essential to rational measures for preventing recurrence. Rendering the urine acid may prevent recurrence of phosphatic calculi but in dogs affected with cystinuria that measure would probably render the formation of cystine stones more likely. A rough qualitative analysis was made to differentiate types of stones. The main constituents detected gave only an approximate idea of the ingredients, but the procedure was simple and sufficiently accurate for practical purposes. Chemical and physical methods, including tests for cystine, are described. The analyses of 7 types of stones and the incidence and time of recurrence in 5 different breeds of different

ages (2 to 7 years) are tabulated. Of 40 other dogs affected with urinary lithiasis, 25 were from 4 to 8 years old, 1 was 2 years old and 1 was 18 years old. Phosphatic stones, supposedly secondary to cystitis, are the commonest types. They are either single or multiple, smooth or rough, and irregularly pyramidal with a urate center. Being associated with infection of the urinary tract, a diet rich in vitamin A is fed. Oxalate and urate stones are described. Inasmuch as cystine stones have been considered rare, the author was amazed to find 19 cases of cystine out of 31 examined. These had smooth, rounded, cream- or buff-colored surfaces, and they were softer than phosphate stones. It would, therefore, seem that these are the commonest urinary calculi of dogs.—[E. G. White, *Research Institute of Animal Pathology, Royal Veterinary College, London: Urinary Calculi in the Dog with Special Reference to Cystine Stones*. *Illustrated*. *J. Comp. Path. and Therap.*, 53, (Jan. 1944): 16-25.]

### The Achromotrichia Fake

The vitamin cure for graying hair (human), widely advertised over the radio, failed to stand up under a critical test carried out on 27 men and women. The alleged cure, pantothenate of calcium, administered daily for a period of six months, did not bring any significant color change in the hair of the graying group. Accurate color measurements were made from the outset of the observation to its conclusion. This trial, coupled with evidence obtained from the literature and personal communications, showed that calcium pantothenate is of no value in restoring the color to gray hair.—[Irwin Kerlan, M.D., and Robert P. Herwick, M.D.: *Calcium Pantothenate for Human Achromotrichia*. *J.A.M.A.* 123 (Oct. 15): 391-393.]

### Thiamin in Pork

Pork is known to be a rich source of thiamin. Detectable variation in thiamin values of pork may be attributed to physiological factors or to different methods of making the determinations. Experimental feeding of three lots of pigs, however, showed that the thiamin content varies mathematically with the intake. Pigs receiving 5,716, 3,447, and 1,318  $\mu\text{g}$ . of thiamin per lb. of feed, fed the same amounts, and thus consuming respectively 29, 17 and 7 mg. of thiamin daily showed no difference in growth but the thiamin content of shoulder, loin, ham, and liver increased 100 per cent from relative increases of thiamin intake. The average thiamin content of fresh shoulder, center loin, and the ham end of loin at the lower intake level was 7.9, 9.5, and 10.3  $\mu\text{g}$ . per Gm., respectively. At the higher level, the values were 17.3, 23.1

and 23.0  $\mu\text{g}$ . per Gm. Loin was higher in thiamin than shoulder, and muscle tissue higher than liver. Pork muscle appears to reach the saturation point in thiamin when pigs receive 5,800  $\mu\text{g}$ . per lb. of feed.—[R. C. Miller, J. W. Pence, R. A. Dutcher, and M. A. McCarthy, *Pennsylvania State College: The Influence of Thiamine Intake of the Pig on the Thiamine Content of Pork with Observations on the Riboflavin Content of Pork*. *J. Nutrition*, 26, (Sept. 1943): 261-274.]

### Vitamin D in Dry Cows

This is a plea for the use of vitamin D in the form of irradiated yeast in cows during the dry period—a critical period of the cow's life owing to the depleting action of lactation and pregnancy. The observations of Bohstedt of the Wisconsin station having shown that the incidence of milk fever, mastitis, and retained placenta is lower among cows at pasture, the aim should be to imitate summer nutritional conditions in winter, and in respect to vitamin D, this is best accomplished with irradiated yeast. Workers of the Ohio station publish encouraging, if not convincing, facts concerning the relation of milk fever to low vitamin D levels, and Meigs of the USDA points out the high percentage of shy breeders, premature births, and weak calves in cows fed on roughage low in carotene. The relation of reproductive troubles to phosphorus deficiency has been frequently demonstrated. In short, the dry cow should have an ample mineral reserve against the day of need for milk production.—*Vitamin D Digest*, Nov. 1943.

### Ostertagia Circumcincta: Laboratory Experiment

An experiment carried out at the University of California to determine the resistance of the free-living stages of *Ostertagia circumcincta* to extreme temperatures and to saturation deficiency revealed that cool, moist conditions were the most favorable for its survival at that stage. High temperature and desiccation were rapidly fatal; burial of its eggs in soil tended to favor rather than to retard its development and longevity, indicating that if seeded to crops not irrigated in normally arid regions, it would obviously be destroyed. Lateral migration on the surface of soil was negligible but in loose soil there was a slight downward migration. Above the soil, vertical migration was favored by intensity of light, moisture and temperature.—[Deane P. Furman, *University of California: Effects of Environment on the Free-Living Stages of Ostertagia Circumcincta (Stadelman)*. *I. Laboratory Experiment*. *Am. J. Vet. Res.*, 5, (Jan. 1944): 79-86.]

### The Spreading of Equine Infectious Anemia

Infectious anemia (swamp fever) of horses is not highly contagious. Only 1 of 3 horses continuously exposed to affected horses and mules for 190 days contracted the disease. When the exposure was continued for 236 and 249 days, the other 2 horses remained well. Four susceptible horses kept in the same stable with affected horses for five to fourteen months and 2 for six months, remained unaffected. Oral administration of unfiltered urine and saliva and subcutaneous injections of these products did not cause the disease. The conclusion was that infectious anemia spreads slowly by contact and that the main mode of dissemination is the biting of flies or the contamination of skin abrasions.—[C. D. Stein, V.M.D., O. L. Osteen, D.V.M., and M. S. Shahan, D.V.M.: "Experimental Transmission of Equine Infectious Anemia by Contact and Body Secretions and Excretions," *Vet. Med.*, 39, (Feb. 1944): 46-52.]

## BOOKS

### Veterinary Obstetrics

Broadly speaking, those who scan the text of a Williams' book, covering the reproductive disorders of farm animals, with the premeditated intention to make up a list of technical errors are always disappointed. The author's experience and the canny knack of making irrefutable deductions therefrom distinguish this work from the backwash of veterinary obstetrical literature. "Here it is," "believe it or not," "take it or leave it," symbolize the tone and the tempo. And, why not? Nothing is fairer than to tell the reader to compare what is said with his own experience which is another way to say "use your head." One can get used to sarcasm that injects that idea into the "polio" of the thoughtless.

*Veterinary Obstetrics* has unmistakably brought American veterinary literature into the foreground. Its anatomy and physiology deserve a lot of credit for clearness, brevity, completeness. The embryology and teratology we leave for the student of these sciences to review. The manual and surgery of obstetrics will lead none astray. They contain many a hint on the mistakes we've made through lack of knowledge on the mechanism of reproductive pathology.

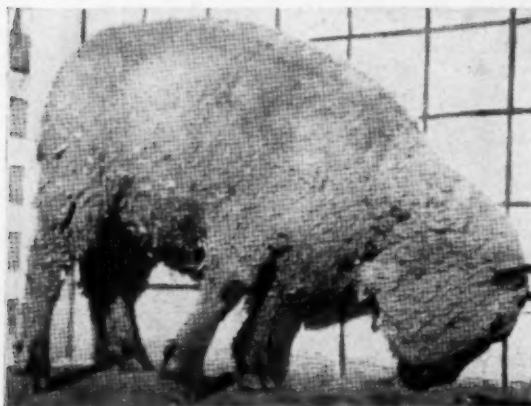
We admire the debunking of extrauterine pregnancy, since it conforms precisely to several critical studies we have made on the presence of fetuses in the abdominal cavity of small animals and which proved (we quote from page 10) that: "Extrauterine pregnancy in domestic animals . . . in behalf of science,

should be divested of its burden of error and myth."

Technically, the book is without blemish so far as we are capable of judging and the illustrations are superb, mostly original and none superfluous. To point out a rare linguistic fault or two would be like painting a rose. [*Veterinary Obstetrics, Fourth Edition. By W. L. Williams, Professor Emeritus, Cornell University. Cloth. 478 pages. 109 illustrations, including 4 color plates. 1943. Published by the author, 209 White Park Road, Ithaca, N. Y. Price \$6.50*]

### Listerellosis in Domestic Animals

But twelve years have elapsed since Gill in New Zealand discovered that an organism of the genus *Listerella* is the specific cause of the encephalomeningeal malady of sheep known as circling disease. Now, one of its species—*Listerella monocytogenes*—is known to be pathogenic for 9 species of farm animals in the United States and 8 species in other countries. Listerellosis, naturally or experimentally, attacks sheep, cattle, swine, horses, dogs, cats,



—Photo by the authors

Fig. 1—Listerellosis in a sheep, natural infection.

chickens, rabbits, laboratory rodents, and man. This bulletin by the Illinois Agricultural Experiment Station reports enzootics in sheep, cattle, and chickens in 13 widely separated counties of that state, and describes the disease with respect to epizootiology, bacteriology, experimental and natural transmission, histopathology and immunology—a bulletin well illustrated with photos and photomicrographs that gives a clear understanding of this relatively new menace to American farm animals and deservedly achieves the status of a best seller. Spotted throughout a highly rated livestock state, listerellosis is obviously one of the

maladies of domestic animals with which to court closer acquaintance in the practice of veterinary medicine and animal production. A threatening infectious disease of farm animals, whose name is barely known and just recently given a place in the literature, it is a startling example of the importance of veterinary research and investigation and a hunch for veterinarians to keep abreast of the times—or else. Its presence in 13 Illinois counties, representing 6 outbreaks in sheep, 8 in cattle, and 1 in chickens, is proof that circling disease is not confined to New Zealand but is here and well rooted.

It is a compliment to the Illinois workers that they were the first to expose horses to the ovine strain of *L. monocytogenes* and to



—Photo by the authors

Fig. 2—Steer affected with listerellosis, showing the depression and strabismus.

record reactions in horses comparable to those described by Biester and Schwarte in swine (1939), by Pirie in dogs and cats (1927), and by Seastone in chickens (1935).

This bulletin contains, in brief, the sum of knowledge of listerellosis to date as obtained from original research among Illinois animals and from references to the work of others.—[*Listerellosis in Domestic Animals* by Robert Graham, N. D. Levine, and C. C. Morrill, University of Illinois, Agricultural Experiment Station. Bulletin 499. 1944. 100 pages. Illustrated.]

### Army Veterinary Sanitary Inspection

This is an illustrated booklet describing that part of the veterinary military service of World War II that is devoted to sanitary inspection. The material is a reprint from articles published in *Veterinary Medicine*, mainly on the operations of that service at an army post. It is an excellent depiction of far-flung penetration of the Veterinary Corps into the field of food inspection: processing plants, dairy farms, milk plants (creameries, condenseries, cheese fac-



tories, ice cream plants), laboratory work, poultry, and eggs.

It is gratifying that someone is putting the veterinary history of this war on record before it fades into the forgotten past and, as occurred after the last war, leaves but little trace for fifteen years that a veterinary service had existed at all during that conflict. This booklet is evidence that the veterinary profession has become more alert in matters pertaining to its welfare.—[*Army Veterinary Sanitary Inspection*. By Lt. Col. D. M. Campbell, V.C., A.U.S. Paper. 64 pages. Illustrated. Veterinary Magazine Corp., Chicago. 1944. Price \$1.00.]

### Manual of Veterinary Clinical Pathology

How to apply one's knowledge of pathology to the best advantage in the field of practice is told in an illustrated booklet, based on experiences gained both in practice and in the laboratory of the Pennsylvania Bureau of Animal Industry, where a great deal of diagnostic work is conducted as an essential aid to the practitioners of that state. That veterinarians wasted a lot of time and effort in selecting and handling pathological or suspected specimens became apparent to the author while working at the receiving end, and later in the rôles of general practitioner and instructor of clinical pathology in the University of Pennsylvania School of Veterinary Medicine.

The absence of a systematic documentation of the subject for the guidance of teacher and student, as well as practitioner, was likewise apparent. This manual is, therefore, the outgrowth of on-the-ground experiences undiluted by theory of purely laboratory origin. Obviously, most of the tribulations of the diagnostic laboratory can be traced to lack of fundamental training of the student on the highlights and pitfalls of diagnostics. Resorting to laboratory aid has become a "must" in veterinary practice. He who does and does it well more nearly fulfills his obligation to himself and his profession. The day of guess work in diagnosis belongs to the past, and inasmuch as doing microscopic and analytical work has become a fixture of everyday practice, we know of no single book that could be a handier reference and guide than this brochure. Up to date and quite complete, well organized, clearly illustrated, carefully written, and conveniently bound to lay flat on the work table, are a few of the thoughts one feels obligated to express in behalf of this timely addition to the veterinary practitioner's library.—[*Manual of Clinical Veterinary Medicine*. By David L. Coffin, V.M.D., Instructor of Veterinary Pathology, University of Pennsylvania and Fellow in Pathology. Philadelphia Zoological Society. 120 pages. Board. Illustrated. One color plate. College Offset Press, Philadelphia. 1944. Price \$3.50]

### Etiology, Diagnosis and Control of Infectious Bovine Mastitis

This is a candid brief intended to concentrate the known facts concerning infectious mastitis of dairy cows into a convenient handbook for student, teacher, and practitioner. It is another of those laudable efforts to gather scattered material on an important animal disease and bring it between the covers of a handy manual. After an introduction asserting that but few dairy herds are entirely free from infectious mastitis and assessing the economic loss at over 72 million dollars annually in the United States, the manual describes the predisposing influence of breed, heredity, lactation, age, size of herd, season and weather, feeding, and physical injury to the udder and teat, and the four groups exciting bacterial agents, their source and their mode of invasion. It is significant to note that the authors, having specialized in the study of udder bacteriology, found *Streptococcus agalactiae* responsible for 90 per cent of the streptococci cases examined. The chapter on diagnosis covers the collection of samples; physical, chemical, microscopic and cultural methods; and the routine of diagnosis to follow. The chapter on control of the disease treats of sanitary milking and general dairy barn sanitation (light, ventilation, floors, disinfection); the care of teats; and the care of first-calf heifers. The treatment of chronic cases includes the usual chemical agents employed for udder infusion and direction for their proper use, and the opportune time of administration. Fifty references are appended.—[*Handbook for the Etiology, Diagnosis and Control of Infectious Mastitis*. By Ival Arthur Merchant and R. Allen Parker, Department of Veterinary Hygiene, Iowa State College. 66 pages. Board. Burgess Publishing Company, Minneapolis. 1944. Price, \$1.25.]

### Breeding Difficulties in Cattle

A booklet "prepared as a service for the dairy industry by General Mills" covers the salient points of the subject from "experiences and observations" at the company's research farm and references to contemporary literature, particularly the teachings of W. L. Williams of Cornell, and such outstanding practitioners as Case of Ohio and Klussendorf of Wisconsin, whom the author quotes freely in arriving at the basic factors involved in reproduction. The booklet is the summation of facts few would essay to contradict.

Failure to come in heat, failure to conceive, coming in heat again several months after breeding, aborting at about seven months, delivery of dead calf at term, a résumé, and conclusions, are the divisions of the material.—[*Ibid.*: Compiled by Charles Staff, Director of General Mills Research Farm, Detroit, Mich. 32 pages.]

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# THE NEWS

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## Board of Governors Meet

Chairman O. V. Brumley, President C. W. Bower and President-Elect James Farquharson were in Chicago on March 15-16, 1944, for a meeting of the Board of Governors. A large amount of association business received attention including plans for the 1944 meeting in Chicago, Aug. 22-24.

Dr. Farquharson addressed the monthly meeting of the Chicago Veterinary Medical Association on the evening of March 14 and showed several of his motion picture films on anaesthesia and surgery.

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## Swine Disease Committee Meets in Chicago

Drs. L. P. Doyle, Lafayette, Ind., Geo. A. Hawthorne, Clarinda, Ia., J. L. Jones, Blackburn, Mo., T. L. Steenerson, Wilkinson, Ind., and B. B. White, Sacramento, Calif., were at AVMA headquarters in Chicago on March 7 and 8, 1944, for a meeting of the Special Committee on Diseases of Swine. The purpose of the meeting was to draft recommendations on disease prevention and control for the swine conservation program which is in prospect by the Feed and Livestock Branch of the War Food Production Administration, U. S. Department of Agriculture. Dr. Cliff D. Carpenter, special assistant to the chief of the Feed and Livestock Branch, met with the Committee and outlined the work to be done to secure the most effective utilization of feed grains and other livestock feeds in order to maintain a proper balance between livestock production and available feed supplies. In this program, it is fundamental that swine growers employ every available means to maintain the health of their animals and so avoid, in so far as possible, wastage of feed and labor from disease causes.

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## Two More State Associations Sponsor Radio Programs

Louisiana and Nevada have been added to the list of state veterinary associations which are sponsoring radio broadcasts on livestock and poultry health, making 30 in all which are now utilizing a series of programs provided by the public relations department of the AVMA.

The Louisiana series started on March 14, 1944, over station WWL, New Orleans, and will

be heard in the beginning at 4:15 p.m. every Tuesday; later, the program will be shifted to the "Dixie Early Edition" at 6:15 a.m. on Tuesdays.

The Nevada association began its series on March 10, 1944, over station KOH, Reno, and will be heard on various days at 12:45 p.m. on the "Farm Program" of the station.

The schedules of 28 other state association broadcasts were published in the JOURNAL for February (p. 110) and March (p. 172), 1944. Members in the various states are urged to consult these schedules and listen to the programs which have been arranged as a public service and a contribution to our wartime food production needs.

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## Can You Help Locate These Lost Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice *via* postcard or letter will be greatly appreciated.

- Aasen, Stephen W., Marshfield, Ore.  
Baver, A. F., 248 E. Main St., Kutztown, Pa.  
Billingsley, John T., 1338 2nd St., Gulfport, Miss.  
Bowie, B. S., Minnons, S. Car.  
Corcoran, James B., 7 N. E. 9th St., Oklahoma City, Okla.  
Davis, Richard H., Jr., 6220 S. Woodlawn Ave., Chicago, Ill.  
Gage, Thomas A., 806 E. Seneca St., Ithaca, N. Y.  
Hoerlein, B. Franklin, Kansas City Q. M. Depot, Kansas City, Mo.  
Learmonth, R., P. O. Box 7093, Capitol Hill Station, Denver 6, Colo.  
Lovell, R. I., Office of the Station Veterinarian, Camp Forrest, Tenn.  
Moughon, William C., Box 609, El Campo, Texas.  
Pike, Tommy L., Rt. 2, La Junta, Colo.  
Siver, Dougal, 429 Wrightwood Ave., Apt. 1-N, Chicago, Ill.  
Traskus, Anthony D., The Veterans Hosp., Hines, Ill.  
Tyler, Lindy, 805 Burlingame Ave., Burlingame, Calif.

## APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

### First Listing

- BACHTOLD, GOMEZ MARTIN**  
Zempoala 76 Col Narvarte, Mexico, D. F.  
M.V., Escuela Nacional de Medicina Veterinaria, 1939.  
Vouchers: F. Camargo N. and G. Q. Bravo.
- BEECHWOOD, C. THEO.**  
120 State Capitol Bldg., Salt Lake City, Utah.  
V.M.D., University of Pennsylvania, 1918.  
Vouchers: F. H. Melvin and W. T. Huffman.
- BUSTAMANTE, ROCUANT ALEJANDRO**  
Veterinario Jefe de la Division de Caballeria, Ejercito de Chile, Santiago, Chile.  
D.V.M., Escuela Militar de Veterinaria, 1914.  
Vouchers: R. McNellis and C. Way.
- CHILDERS, R. R.**  
Box 597, Jasper, Texas.  
D.V.M., Texas A. & M. College, 1921.  
Vouchers: L. G. Cloud and E. A. Grist.
- DELGADO, GUERRERO LUIS**  
Algeciras No. 38 Mixcoac, D. F. Mexico.  
M.V., Escuela Nacional de Medicina Veterinaria, 1930.  
Vouchers: F. Camargo N. and G. Q. Bravo.
- DEVALOIS, C. A.**  
720-4th Ave., Sheldon, Iowa.  
D.V.M., Iowa State College, 1937.  
Vouchers: C. C. Franks and J. A. Barger.
- FERNANDEZ, GOMEZ RUBEN**  
Calle de la Reina 100, Villa Alvaro Obregon, Mexico D. F.  
M.V., Escuela Nacional de Medicina Veterinaria, 1931.  
Vouchers: F. Camargo N. and G. Q. Bravo.
- FIGUEROA, BALVANUERA JOSE**  
Bellini 23, Guadalupe Trm., Villa Olregon, Mexico, D. F.  
M.V., Escuela N. de Agricultura y Veterinaria, 1914.  
Vouchers: F. Camargo N. and G. Q. Bravo.
- FUNCHESSE, GEORGE THADDUES**  
Box 624, 317 N. Tenn. St., Graham, Texas.  
D.V.M., Southwestern Veterinary College, 1916.  
Vouchers: L. G. Cloud and S. G. Bittick.
- GARRETT, R. G.**  
Box 68, Taylor, Texas.  
D.V.M., Texas A. & M. College, 1941.  
Vouchers: J. D. Williams and N. A. Cox.
- GREER, C. McH.**  
Box 666, Winnesboro, La.  
D.V.M., Kansas City Veterinary College, 1917.  
Vouchers: W. A. McDonald and C. M. Heflin.
- HASTINGS, GEORGE H.**  
Veterinary Station Hosp., Ft. Bliss, Texas.  
D.V.M., Colorado State College, 1943.  
Vouchers: F. W. Shinn and R. D. Barner.
- HEATON, JAMES W. JR.**  
3519 Meadowbrook Dr., Ft. Worth, Texas.  
D.V.M., Texas A. & M. College, 1938.  
Vouchers: G. C. Poppenhouse and D. J. Anderson.
- HOLMES, JOHN M.**  
Station Veterinarian, Hq. Camp Polk, La.  
D.V.M., Ohio State University, 1932.  
Vouchers: J. D. Jones and J. E. Stiles.
- LADRON, GUEVARA CASREAL ANTONIO**  
Direccion de Investigaciones Pecuarias, Calzada de los Maestros 116, Mexico D. F.  
M.V., Escuela Nacional de Medicina Veterinaria, 1940.  
Vouchers: F. Camargo N. and G. Q. Bravo.
- LITTLE, ROBERT DALE**  
1495 Pennsylvania Ave., Columbus 1, Ohio.  
D.V.M., Ohio State University, 1943.  
Vouchers: J. T. Burriss and W. F. Guard.
- MAGENS, HANS J.**  
Station Veterinarian, Camp White, Ore.  
V.S., State Veterinary College of Austria, 1924.  
Vouchers: E. T. Padfield and E. W. Morehouse.
- MERCADO, GARCIA DANIEL**  
Nogal St. 157, Mexico, D. F.  
M.V., National Veterinarian School, 1922.  
Vouchers: F. Camargo N. and G. Q. Bravo.
- MURCH, R. GORDON**  
138 Washington Ave., Chelsea, Mass.  
D.V.M., Cornell University, 1934.  
Vouchers: W. M. Simpson and L. A. Paquin.
- ORTIZ, BERUMEN DANIEL**  
Santuario No. 9, Del Valle, Mexico City, Mexico.  
D.V.M., Escuela Nacional de Medicina Veterinaria, 1939.  
Vouchers: F. Camargo N. and G. Q. Bravo.
- REDDEN, ELWIN M.**  
509 S. 6th St., Norfolk, Neb.  
D.V.M., Iowa State College, 1927.  
Vouchers: E. C. Jones and J. E. Weinman.
- RUBIO, LOZANO FEDERICO**  
16 de septiembre 407, Chihuahua, Chihuahua, Mexico.  
D.V.M., Escuela Nacional de Medicina Veterinaria, 1927.  
Vouchers: F. Camargo N. and G. Q. Bravo.
- SERVAIS, HAROLD A.**  
1001 Stewart Ave., S. W., Atlanta, Ga.  
D.V.M., Alabama Polytechnic Institute, 1938.  
Vouchers: C. C. Rife and D. H. Traylor.
- STILLEY, LOUIS E.**  
3731 Hilltop Rd., Ft. Worth, Texas.  
D.V.M., Kansas City Veterinary College, 1917.  
Vouchers: L. G. Cloud and A. Lockhart.
- TELLEZ, GIRON RODE ALFREDO**  
Parroquia 637, Mixcoac Mexico D. F.  
M.V., Escuela Nacional de Medicina Veterinaria, 1929.  
Vouchers: F. Camargo N. and G. Q. Bravo.



**Second Listing**

- Brown, W. J., 112 E. Mt. Airy Ave., Philadelphia 10, Pa.  
 Cox, Harry B., 519 White Horse Pike, Audubon, N. J.  
 Durrell, W. B., Box 181 Simcoe, Ont., Can.  
 Hester, K. J., Station Veterinarian, Benicia Arsenal, Calif.  
 Hoyt, Frederick J., Afton, N. Y.  
 Jensen, Ray C., 2357 Lexington-Gallatin Rd., Rivera, Calif.  
 Linzinmeir, Charles B., Box 511, Chanute Field, Ill.  
 McFarlane, A. M., 156 Winston Rd., St. James, Manitoba, Can.  
 Mershon, Howard M., P. O. Box E, Linesville, Crawford Co., Pa.  
 Mitchell, Francis S., 540 Second St., N.W., Carrollton, Ohio.  
 Moon, G. W., Howard, Kansas.  
 Morton, John A., 1801 Wilson Ave., Webster City, Iowa.  
 Phelps, Guy J., 108 N. Laurence St., Montgomery, Ala.  
 Reinhardt, Wade H., Surgeon's Section, Hdqs. First Air Force, Mitchel Field, N. Y.  
 Riley, G. A., 6207 Vine Vale Ave., Bell, Calif.  
 Roberts, Charles S., Office of the Surg., Hq., U. S. Advance Base "A", APO 928—c/o P.M., San Francisco, Calif.  
 Routzong, Virgil W., 222 W. McClure Ave., Peoria, Ill.  
 Schrag, O. J., c/o Kuhner Packing Co., Muncie, Ind.  
 Scribner, L. A., 116 Bonnie Loch Court, P. O. Box 1823, Orlando, Fla.  
 Walters, E. Douglas, 204 Maple St., Wyandotte, Mich.  
 Weeks, J. I., Clinton, N. Car.  
 Weisz, Leo, 31 Point St., Natick, Mass.  
 Wheelin, Thomas J., Station Veterinary Hosp., Fort Ord, Calif.  
 Wolf, Joseph D., P. O. Box 2183, Hickory, N. Car.

**1943 Graduate Applicants****First Listing**

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (\*) after the name of a school indicates that all of this year's graduates have made application for membership.

**Michigan State College**

GOODBAND, G. CLIFFORD, D.V.M.  
 411 Dedham, Newton Center, Mass.  
 Vouchers: J. P. Hutton and E. K. Sales.

**Texas A. & M. College**

SMITH, HAROLD R., D.V.M.  
 Princeville, Ill.  
 Vouchers: R. B. Caraway and R. P. Marsteller.

**Washington State College**

BRADBURY, L. G., D.V.M.  
 624 W. Division, Mt. Vernon, Wash.  
 Vouchers: R. H. Bradbury and E. E. Wegner.

**Second Listing****Iowa State College**

Pratt, Donald W., D.V.M., 106 Hammond St., Red Oak, Iowa.

**Ohio State University**

Bunker, Von Clyde, D.V.M., 5242 W. Washington Blvd., Los Angeles 16, Calif.

**Washington State College**

- Adams, Carroll E., D.V.M., P. O. Box 187, 501 Edison St., Olympia, Wash.  
 Bell, Leland Joseph, D.V.M., Rt. 2—Box 26, Woodland, Calif.  
 Burke, Henry A., D.V.M., 5202 S. Puget Sound, Tacoma, Wash.  
 Linder, Eric W., D.V.M., 1016 Boren Ave., Seattle, Wash.  
 Ryncarz, Alexander J., D.V.M., 4507 S. Lawrence St., Tacoma, Wash.  
 Taylor, Ernest S., D.V.M., Box 203—Rt. No. 3, Yakima, Wash.  
 Walker, Johnnie Dee, D.V.M., 919 S. Manhattan Pl., Los Angeles, Calif.

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**U. S. GOVERNMENT**

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**Penicillin.**—The Office of War Information, under date of Feb. 20, 1944, announced that 13 firms in the United States and two in Canada were producing penicillin, and that by July, the number will be increased to 23, running at full capacity. The Army and Navy take 86 per cent of the output. The remainder goes to clinical research and chemical investigation.

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**Phenothiazine Increases Catgut Output.**—The Agricultural Research Administration reports that the use of phenothiazine is increasing the yardage of sheep intestines fit for making catgut. In one large packing plant, a survey of 1,400 lambs from treated and untreated flocks in southern Minnesota showed an eight-fold increase in the portion of intestines undamaged by nodular worms. Before flocks were treated with this drug, less than 10 per cent of lamb intestines was free from nodular worm injury. In 1943, after treatment, the percentage of undamaged intestines was 80 per cent.

**Prison Herds.**—Prison officials in session in Washington (January 24) were told by Chief A. W. Miller of the U. S. Bureau of Animal Industry that good hygiene, sanitation, and sound breeding practices, together with the eradication of tuberculosis and brucellosis, are contributing substantially to wartime food production. Prison farms are highly productive and set an example for other keepers of livestock through the high animal-health standards the federal and state veterinary services at penal institutions maintain, Chief Miller declared. Vigilant veterinary inspection to detect disease in the early stage and stricter attention to the control of parasites were among the recommendations made to improve public livestock.

## AMONG THE STATES

### Arkansas

**State Association.**—The Arkansas Veterinary Medical Association sponsored a livestock and poultry conservation meeting Feb. 8-9, 1944. The program follows:

**A. H. Quin, Kansas City, Mo.:** "Bovine Mastitis and Artificial Insemination;" "As Drought Will Affect Our Feeds;" "Calfhood Vaccination."

**N. H. Casselberry, Berkeley, Calif.:** "Health on the Range—Anthrax, Anaplasmosis, Bang's Disease, Shipping Fever, etc.;" "Discussion of Hog Cholera, Swine Erysipelas and Related Diseases of Swine with Colored Illustrations;" "Problem of Adult Vaccination."

**Cliff D. Carpenter, Chicago, Ill.:** "Conservation for an Early Victory.;" "For the Poultrymen."

The subject, "Bang's Disease as the Beef Cattle Grower Sees It" was discussed by local beef growers.

The subject "Bang's Disease as the Dairyman Sees It" was discussed by local dairymen.

**J. S. Campbell, state veterinarian:** "Bang's Disease as We Are Affected by Interstate Health."

**A. W. Rice, Little Rock:** "The United States Bureau of Animal Industry Program."

It is believed by Dr. Quin that groundwork for what may mean an international conference on the rehabilitation of animals was laid at this conference.

s/ J. S. CAMPBELL, *Secretary-Treasurer.*

### British Columbia

**The British Columbia Veterinary Association.**—The Association met Feb. 12, 1944 at Van-

couver, with President F. W. B. Smith presiding. A technicolor film on the sulfonamides was shown by Ken Leatherdale of Lederle Laboratories, and Dr. S. N. Wood of the University of British Columbia presented one on the nervous system.

s/J. G. JERVIS.

### California

**Veterinary Conference.**—The veterinary conference held at San Luis Obispo, Jan. 4-6, 1944, was voted a success. The attendance was 97 as compared with 75 last year, with 25 per cent increase in interest. It was the consensus that wartime meetings should be continued. President J. A. McPhee was in charge and A. M. McCapes, B. F. Murray, John M. King, and C. M. Haring, respectively, presided at the four sessions held. President-elect James Farquharson of the AVMA was the principal speaker at the banquet held Wednesday night. The program announced was:

**M. A. Northrup:** "Conducting a Small Animal Practice by Appointment."

**James Farquharson, President-elect of the American Veterinary Medical Association:** "Small Animal Clinic," and "Large Animal Clinic"—Motion Pictures.

**J. F. Harr:** "Rôle of the Veterinarian in Poultry Diseases."

**A. R. Inman:** "Poultry Projects Carried Out by the Veterinarian."

**J. R. Beach:** "Recent Poultry Experiments."

**W. H. Boynton:** "Bacillary Icterohemoglobinuria"—Motion Picture.

**R. T. Treadwell, M. D.:** "Russia Today."

**J. W. Britton:** "Phenothiazine."

**W. J. Cecil:** "The Present Milk Situation."

**C. U. Duckworth:** "The Value of Motion Pictures in Veterinary Medicine."

**K. G. McKay:** "Statewide Program for Mastitis Control."

**O. W. Schalm:** "Gangrenous Mastitis."

**N. H. Casselberry:** "Common Diseases of Cattle"—Technicolor picture.

s/JOHN L. TYLER, *Resident Secretary.*

[A meeting of California veterinarians with John L. Tyler absent, that's news. The reason for the absence was a sad event—the death of Mrs. Tyler.—Editor.]

### District of Columbia

**District of Columbia Association.**—The first quarterly meeting of the Association was held Jan. 11, 1944, at the Mayflower Hotel. Following are the speakers and their subjects:

H. E. Moskey, Food and Drug Administration: "Veterinary Remedies from a Standpoint of the Remedies and Cosmetic Act."

Gerald Dikmans, Zoölogical Division, Beltsville, Md.: "Demonstration of Unusual Parasitic Lesions in Calves."

The following officers were elected for the year: C. Kenneth Francis, *president*; D. I. Skidmore, *first vice-president*; Col. H. K. Moore, *second vice-president*; W. M. Mohler, *secretary-treasurer*.

s/W. M. MOHLER, *Secretary*.

## Illinois

**Eastern Illinois Veterinary Medical Association.**—The regular meeting of the Association was held Feb. 21, 1944, in Champaign. Dr. Herman Farley, formerly of the Kansas State College, spoke on "Anaplasmosis and Keratitis of Cattle." A lively question box followed.

**Abbott Memorial Fund.**—A noteworthy event in the conduct of the war can be written around the gift to Northwestern University of \$1,500,000 from the estate of the late Clara

building which was completed in 1940, whereupon it was turned over to the United States Navy to establish a midshipman's school for the training of naval officers. Thus a year before Pearl Harbor, Abbott Hall, the structure herein shown, was destined to render yeoman service to the country. Already, like Annapolis, Abbott Hall has a long roll of graduates who have performed deeds of heroism on many seas. Moreover, through the income of the building, the University has been able to sponsor 11 research projects in the field of medicine. One of these is the work of Dr. Andrew C. Ivy on nutrition, well known to the veterinary profession.

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**The Chicago Veterinary Medical Association.**—The regular meeting was held in the Palmer House, Mar. 14, 1944. Dr. James Farquharson, president-elect of the AVMA and head of the Department of Surgery and Clinics, Colorado State College, Fort Collins, was one of the speakers. Dr. L. A. Merillat, editor of the AVMA publications, Chicago, discussed the Illinois Veterinary Act.

s/W. A. YOUNG, *Secretary-Treasurer*.

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**War Dog Program at Chicago Rotary Club.**—Dr. Wesley A. Young, Managing Director of The Anti-Cruelty Society, Chicago, was chairman of the luncheon program of the Chicago Rotary Club at Hotel Sherman, Feb. 1, 1944. Features of the meeting were a talk by Sergeant John W. Mehren, AUS, formerly of Chicago and now with the Army War Dog Reception and Training Center, Fort Robinson, Neb., who spoke on "War Dogs on the Battle Fronts", and a demonstration of war dog obedience training under the direction of Mr. G. E. Murphy, procurement officer for "Dogs for Defense, Inc." for the Chicago area. Sergeant Mehren cited his experiences in conducting overseas the first contingent of war dogs to see action in the South Pacific theatre and told stories of the K9 corps in their performance of outstanding services for our troops in that zone of operations.

Thanks to Dr. Young's usual capable handling of such affairs, the program proved to be one of Chicago Rotary's outstanding meetings and the veterinary profession and Army Veterinary Corps received much favorable comment and publicity. A number of well-known veterinarians in the Chicago area were Dr. Young's guests at the luncheon.

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Abbott Hall

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swering questions on the right way to handle dogs stricken with fits. The program was sponsored by John Morrell & Company, makers of a popular dog food, well known to the readers of *J.A.V.M.A.*

### Veterinary Medicine

(The following is a reprint of an editorial which appeared in the *Chicago Tribune*, Feb. 20, 1944.)

The state veterinarians association, which is urging that the University of Illinois establish courses in veterinary medicine, has been promised careful consideration of its recommendation by members of the university's board of trustees.

The veterinarians have sound grounds for their recommendation, not the least of which is the fact that Illinois students who wish to enter this field are severely handicapped in getting training. There aren't many schools of veterinary medicine in the colleges and universities of the country, and Illinois has none. All of the first-rank schools have more applicants for instruction than they can accommodate and tend to give preference to students from the state that supports the institution. That leaves the applicants from Illinois out in the cold.

Illinois is one of the great meat producing states in the Union. This industry needs veterinarians, and they also are required as technicians in the field of public health. Cattle testing, dairy and meat inspection, and kindred activities call for increasing numbers of trained men. Another public health activity that concerns them is the control of rabies, which in Illinois is as serious a problem as it is anywhere in the country.

The college of agriculture at the state university already teaches animal pathology and many of the other basic courses necessary to veterinary training. Establishment of the full course in veterinary medicine should not require too large additions to the present faculty.

The university trustees were well advised, however, to approach the problem with one reservation. If they establish a veterinary school or department they should go at it thoroughly or not at all. Arrangements should be made not only to give instruction but to carry an active and comprehensive research program.

American universities, and particularly tax supported institutions, are under constant pressure to expand their courses and give instructions in specialized fields. In consequence, many of their activities have never risen far

above the level of a good vocational high school. This is as much an injustice to an institution's graduates as it is to the institution itself and the taxpayers that put up the money.

A student turned out by a department or school engaged solely in instruction gets second rate training. It is only when instruction is tied closely to well planned and liberally supported research programs that first rate men are graduated in any scientific or technical field. Veterinary medicine offers excellent opportunities for research. The Mayo Foundation engages in it, and it is certainly not beneath the dignity of the University of Illinois.

### "Veterinary Medicine"

(The following letter from Mr. Guard appeared in the "Voice of the People," *Chicago Tribune*, Feb. 24, 1944.)

Chicago, Feb. 23.—Live stock producers throughout the country, intensely interested in the conservation and improvement of the herds and flocks that supply the meat and milk, wool and horse power of the nation, will commend you for last Sunday's sensible editorial on "Veterinary Medicine." Time was when Chicago itself was a center of veterinary education, due to the excellent courses offered by two private schools. Every one thought that the veterinarian was passe with the replacement of the horse by the internal combustion engine, but now the new demands for expert herdsmanhip have created a greater need than ever for professional skill in maintaining animal health. If a young man wants to gain a veterinary education today he most probably journeys eastward to Ohio State university or to Cornell. There is every sound reason why the greatest veterinary college in the world should be located at the center of the meat belt.

Among farmers there has been quite a lot of talk about setting up a new system of "live stock county agents" after the war. They want to install trained animal husbandmen in every county or group of counties where improved live stock keeping would be economic. This local live stock leader will be all the more efficient and helpful in the community if he has a veterinary education on top of his animal husbandry training. The University of Illinois could find no field of service more beneficial to the Prairie state and, indeed, the entire corn belt than to establish a college of veterinary medicine.

SAMUEL R. GUARD,  
Editor of *Breeder's Gazette*.

**Eighty-First Annual Meeting—August 22-24, 1944**  
**Palmer House, Chicago**

H. E. Moskey, Food and Drug Administration: "Veterinary Remedies from a Standpoint of the Remedies and Cosmetic Act."

Gerald Dikmans, Zoölogical Division, Beltsville, Md.: "Demonstration of Unusual Parasitic Lesions in Calves."

The following officers were elected for the year: C. Kenneth Francis, *president*; D. I. Skidmore, *first vice-president*; Col. H. K. Moore, *second vice-president*; W. M. Mohler, *secretary-treasurer*.

s/W. M. MOHLER, *Secretary*.

## Illinois

**Eastern Illinois Veterinary Medical Association.**—The regular meeting of the Association was held Feb. 21, 1944, in Champaign. Dr. Herman Farley, formerly of the Kansas State College, spoke on "Anaplasmosis and Keratitis of Cattle." A lively question box followed.

**Abbott Memorial Fund.**—A noteworthy event in the conduct of the war can be written around the gift to Northwestern University of \$1,500,000 from the estate of the late Clara



Abbott Hall

A. Abbott, widow of Dr. Wallace C. Abbott, founder of the Abbott Laboratories of North Chicago. The terms of the will stipulated that the income from the donation be used to advance medical, surgical, and chemical sciences. The University invested the fund in a 20-story

building which was completed in 1940, whereupon it was turned over to the United States Navy to establish a midshipman's school for the training of naval officers. Thus a year before Pearl Harbor, Abbott Hall, the structure herein shown, was destined to render yeoman service to the country. Already, like Annapolis, Abbott Hall has a long roll of graduates who have performed deeds of heroism on many seas. Moreover, through the income of the building, the University has been able to sponsor 11 research projects in the field of medicine. One of these is the work of Dr. Andrew C. Ivy on nutrition, well known to the veterinary profession.

**The Chicago Veterinary Medical Association.**—The regular meeting was held in the Palmer House, Mar. 14, 1944. Dr. James Farquharson, president-elect of the AVMA and head of the Department of Surgery and Clinics, Colorado State College, Fort Collins, was one of the speakers. Dr. L. A. Merillat, editor of the AVMA publications, Chicago, discussed the Illinois Veterinary Act.

s/W. A. YOUNG, *Secretary-Treasurer*.

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## Indiana

**Michiana Veterinary Medical Association.**—Thirty members and their wives attended the February meeting of the Michiana Veterinary Medical Association. Officers elected for the ensuing year were: W. G. Magrane, *president*; Kenneth Frazier, *vice-president*; W. A. MacKenzie, *secretary-treasurer*.

Plans were discussed for an all cattle clinic to be sponsored by the organization in June.

s/W. A. MacKENZIE, *Secretary-Treasurer*.

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A course for veterinarians devoted to diseases of cattle will be held at the county agent's office at Huntington every Thursday evening beginning March 2, 1944. The more common and important disease problems will be discussed and properly supplemented with lantern slides and pathological specimens of the bovine genital organs. Eight to 10 such meetings beginning at 7 p. m. will be held, according to an announcement by C. R. Donham, chief veterinarian, and L. E. Hoffman, associate director of agricultural extension, of Purdue University.

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**Northwestern Veterinary Medical Association.**—The annual meeting of the Northwestern Association was held Mar. 23, 1944, at Glenn L. Ebright's Hospital, Hammond, Ind. Guest speakers were: A. H. Craige, Jr., Indianapolis; W. C. Glenney, Elgin, Ill.; S. F. Scheidy, Glenolden, Pa.; and C. L. Miller, Oak Park, Ill.

## Iowa

**State Association.**—The Iowa Veterinary Medical Association has elected the following officers for 1944: Geo. A. Hawthorne, Clarinda, *president*; V. B. Vanderloo, Dubuque, *president-elect*; P. O. Dorweller, West Bend, *vice-president*; W. C. Ver Ploeg, Pella, *second vice-president*; C. C. Franks, Des Moines, *secretary-treasurer*.

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**East Central Veterinary Medical Society.**—Thirty-six veterinarians from near-by counties attended the meeting held Mar. 9, 1944, at the Tipton Hotel, Tipton, Ia. The following program was presented:

H. C. Smith, Sioux City: "Salmonella, or Typhus Infections of Swine."

A. R. Menary, Cedar Rapids, discussed the medicinal treatment of enteritis in swine.

A. R. Stephenson, Bennett, led the discussion on the nutritional phases.

J. C. Carey, West Liberty, spoke on the acid treatment of such disorders.

John B. Bryant, Mount Vernon, led a forum on postwar planning for veterinary practitioners.

C. H. Banks, Tipton, and R. E. Elson, Vinton, talked on cooperative demonstrations with the county agricultural extension director.

s/M. C. LARSON, *Secretary-Treasurer*.

## Kansas

**Kansas State College.**—The Kansas State College team, composed entirely of veterinary students, placed first in the college division of the All American Holstein-Friesian judging contest. The team scored 102 out of a possible 160 points. The four members of the team were: Jacob E. Mosier, Hoxie; Alva C. Kelman, Arlington; Embert H. Coles, Colby; and Robert M. Jarrett, Waverly, Ill.

Not only did this team win first in the United States, but three of the Kansas State College contestants also placed first, third, and fourth of all the individuals participating in the contest.

s/R. R. DYKSTRA,  
*Dean, School of Veterinary Medicine.*

## Louisiana

**Louisiana Association Joins Broadcast Series.**—On March 14, 1944, the Louisiana Veterinary Medical Association inaugurated its series of radio broadcasts on livestock health over station WWL of New Orleans. In the beginning, the programs will be heard every Tuesday at 4:15 p. m. on the "Dixie's Late Edition" hour which is handled by the state department of agriculture. Later on, the talks will be given on the "Dixie's Early Edition" at 6:15 a. m., which is a more desirable hour for farm listeners.

Louisiana is the twenty-ninth state to participate in the series of broadcasts, material for which was made available for all constituent veterinary associations by the AVMA public relations department in the interest of livestock and poultry production and conservation in wartime. Schedules of the 28 other association broadcasts were published in the JOURNALS for February, 1944, (p. 110) and March, 1944, (p. 172).

The Louisiana series was initiated by Dr. E. P. Flower, secretary and executive officer of the Louisiana State Livestock Sanitary Board, who has the unique distinction of being the only state veterinarian Louisiana has had and the oldest state veterinarian in the United States from the standpoint of thirty-three years of continuous service.

**State Association.**—The thirteenth annual conference for veterinarians was held at The Louisiana State University and A. and M. College, Feb. 16-17, 1944, Baton Rouge. The program follows:

**C. W. Bower**, Topeka, Kan., president of the AVMA: "Rabies and Its Relation to Public Health"; "Wartime and Postwar Activities of the American Veterinary Medical Association"; "Some Hints on Small Animal Practice"; "Clinical Demonstrations—Small Animals."

**J. B. Francioni**, Louisiana State University: "Wartime Feeding of Livestock."

**A. J. Gelpi**, Louisiana State University: "Some Methods of Diagnosing Mastitis."

**D. A. Sanders**, University of Florida, Gainesville: "Therapy and Herd Management in the Control of Mastitis"; "Deficiency Diseases."

**H. A. Burton**, Alexandria, La., and **P. L. Piercy**, Louisiana State University: "Mushroom Poisoning of Cattle."

**O. W. Olsen**, Bureau of Animal Industry, Angleton, Texas: "Pacific Islands—Prewar (Illustrated)"; "Therapeutic Control of Liver Flukes."

**J. F. Bullard**, Purdue University, Lafayette, Ind.: "Cattle Practice"; "Equine Practice."

**O. W. Olsen** (BAI), and **R. L. Mayhew**, Louisiana State University: "Demonstration—Postmortem Examination for Internal Parasites."

**W. L. Stroup**, Corinth, Miss.: "Demonstration—New Methods of Animal Restraint."

Motion pictures were used to depict large animal surgery.

## Maryland

The golden anniversary of Johns Hopkins University School of Medicine fell on Oct. 2, 1943. The school opened its doors on that date in 1893. On account of the war, there was no elaborate celebration. However, an illustrated bulletin telling the story of its origin and a modest recount of its achievements, particularly in the war effort, was published.

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**William Spence** (A.P.I., '43), has left the service of the Maryland Livestock Sanitary Service to establish a general practice in Delaware.

**H. F. Burton** (U.P., '43), has accepted a position with the Maryland Livestock Sanitary Service.

**C. L. Bean** (Colo., '35), has resigned his position with the Bureau of Animal Industry, conducting investigations on infectious mastitis with the Maryland Livestock Sanitary Service, to establish a special practice in Rockville, Maryland.

**J. Walter Hastings, Sr.**, is now secretary of the state association, filling the position left vacant by Mark Welsh.

## Massachusetts

**State Association.**—The regular February meeting of the Association was held at the Hotel Vendome, Boston, on Feb. 23, 1944. The following program was presented. Several of the broadcasts by the state association in coöperation with the AVMA were given by the members for the benefit of the Association.

**A. E. Woelffer**: "Keeping Livestock Healthy."

**A. H. Russell**: "Shipping Fever," followed by a discussion.

At the annual meeting, held Jan. 26, 1944, the following officers were elected. **Osman Babson**, president; **F. M. Austin**, vice-president; **E. M. Aldrich**, second vice-president; and **H. W. Jakeman**, secretary-treasurer. **L. A. Paquin** was elected delegate to the House of Representatives of the AVMA and **W. H. Dodge** was elected alternate.

**E. K. Knobel** was made an honorary member of the Association.

s/ **H. W. JAKEMAN**, Secretary.

## Montana

Bureau and deputy state veterinarians held a conference Feb. 3-4, 1944, at the Livestock Building in Helena. State and federal coöperative work in the state was discussed by the inspector in charge and bureau and state veterinarians. New state regulations promulgated by the Montana Livestock Sanitary Board were reviewed and explained by **Dr. W. J. Butler**, state veterinarian. New methods for the treatment of mastitis were reviewed by **Dr. Fred L. Metcalf**, Missoula. A round-table discussion of the various contagious infectious diseases encountered in Montana was held on the closing day of the conference.

s/G. W. CRONEN, Resident State Secretary.

## New Jersey

**State Association.**—The sixtieth annual meeting was held Feb. 3-4, 1944, at Hotel Sheraton, Newark. The following is the program:

**Charles W. Bower**, Topeka, Kan., president of the AVMA: "Some Experiences Gained in Twenty-Five Years in Small Animal Practice."

**Charles G. Grey**, U. S. Bureau of Animal Industry, Washington, D. C.: "A Discussion of Swine Erysipelas."

**H. H. Newcomb**, Summit, N. J.: "Hormonal Therapy in Bovine Sterility."

**H. VanDissteler**, formerly of Groningen, Holland: "The Future of the Veterinary Profession."

**R. S. Amadon**, University of Pennsylvania,

Philadelphia: "The Physiology of the Fore-Stomachs of the Ox."

**T. S. Sutton**, Ohio State University, Columbus: "The Relation of Vitamins in Nutrition to Animal Disease."

**Mark Welsh**, Pearl River, N. Y.: "Recent Developments in the Use of Sulfonamids."

**C. L. Blakeley**, Boston: "Surgical Repair of Perineal Hernia in Dogs."

**P. I. Bowman**, Princeton, N. J.: "Penicillin."

A number of exhibits and demonstrations showed the latest developments in materials and equipment for professional use.

The officers for 1944 are: **R. A. Hendershott**, president; **J. A. S. Millar**, first vice-president; **R. S. Huff**, second vice-president; **J. B. Engle**, treasurer; **J. R. Porteus**, secretary.

s/ **J. R. PORTEUS**, Secretary.

## New York

**Noteworthy Librarian.**—Librarians who know how to file material, find it in a jiffy, and translate from many languages are so rare that they are sure to attract attention beyond the bounds of their workshop. Such a person is the widow of the late Samuel Howard Burnett (Corn. '92 and NYSVC '02), former professor of pathology at the New York State Veterinary College, Cornell University, who serves as librarian at James Law Hall. Columnist Romeyn Berry in *Cornell Alumni News* (December, 1943), radio commentator, lawyer, farmer, and onetime on the staff of the *New Yorker*, tells of his trip to the Cornell University Library in quest of information contained on page 335, volume 68 of *Schweizer Archiv für tierheilkunde*. Referred to James Law Hall, where veterinary literature is filed, Mrs. Burnett not only brought out the issue in a moment and translated the page to make sure of its identity but in one minute and two seconds, said Berry, had a photostatic copy made for him to send to his inquirer, a Chicagoan who wanted to read what the Swiss author had to say about the phenomenon of "letting down milk." A simple episode? No, a striking example of efficiency, rare as a day in June.—Editor.

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**Dr. C. E. DeCamp**, Scarsdale, addressed the Larchmont Rotary Club Feb. 18, 1944, on the subject, "Potatoes, Pork Chops and Hitler." He told of the valuable services performed by the Army Veterinary Corps in food sanitation and explained the important place food is playing in the war and will continue to play for many years to come.—*Larchmont Rotary News* (Feb. 21, 1944).

## Oklahoma

**State Association.**—The twenty-ninth annual meeting of the Oklahoma Veterinary Medical Association was held in the Skirvin Hotel, Oklahoma City, Jan. 11-12, 1944. The guest speakers were: **L. A. Dykstra**, Galesburg, Ill.; **Dr. Lewis E. Harris**, Lincoln, Neb.; **Hubert Schmidt**, College Station, Tex.; and **Mark Welsh**, Pearl River, N. Y. Major **E. Geyer**, Ft. Reno, Oklahoma also appeared on the program.

The new officers of the Association are: **F. Y. S. Moore**, McAlester, president; **I. C. Worshem**, Bixby, vice-president; **J. B. Corcoran**, Oklahoma City, secretary-treasurer.

s/ **J. B. CORCORAN**, Secretary.

## Oregon

**State Association.**—The Oregon State Veterinary Medical Association met Feb. 9, 1944 at the Multnomah Hotel, Portland. The following program was presented:

**J. H. Bailey**, Portland: "Human and Animal Nutrition."

**J. O. Schnautz**, Corvallis: "Management and Diseases of Rabbits."

**D. C. Wilke**, Portland: "Questions and Answers on Federal Meat Inspection."

**J. H. Haag**: "War Time Feeds."

**W. E. Ruggles**, Portland: "Surgical Demonstrations on Small Animals."

**M. J. Smith**, Tillamook: "Foreign Body Diagnosis."

At the business meeting the following officers were elected for the coming year: **E. E. Chase**, president; **H. A. Wheeler**, vice-president; **W. E. Ruggles**, secretary-treasurer. **R. Kent Magruder** and **F. C. Myers** will serve as Board of Governors.

s/ **E. W. COON**, Secretary.

## Utah

**Intermountain Livestock Sanitary Association.**—The sixteenth annual meeting was held at the Newhouse Hotel, Salt Lake City, Feb. 18-19, 1944. The following program was presented.

**George W. Stiles**, Denver, Colo.: "Anaplasmosis and Its Significance to the Cattle Industry of Intermountain Areas"; "Brucellosis of Goats."

**W. A. Hagan**, Washington, D. C.: "Some Bacteriological Aspects of the so-called Tubercular Skin Lesion."

**James Farquharson**, Fort Collins, Colo., president-elect of the AVMA: "Diseases of Sheep"; "Surgery of the Cow and Horse."

**W. E. Rasmussen**, Ogden: "A Practitioner's Experience with an Artificial Insemination Program."



Roy A. Nipko, Salt Lake City: "The Treatment of Enteritis in Dogs and Cats."

Hugh Hurst, Salt Lake City: "Parasitic Enteritis of Turkeys and Its Control."

L. R. Vawter, Reno, Nevada: "Developments in Virus Disease Research."

E. R. Quortrup, Brigham City: "Botulism of Fowl and Mammals."

F. B. Queen, Brigham City: "The Use of Penicillin in Clinical Medicine."

W. E. Stahl, Rexburg, Idaho: "Practical Preparation and Use by the Practitioner of Blood Banks for Animals."

The officers for the coming year are F. H. Melvin, Salt Lake City, *president*; P. H. Graves, Idaho Falls, *first vice-president*; Edward Records, Reno, *second vice-president*; W. T. Huffman, Salt Lake City, *third vice-president*; and D. E. Madsen, Logan, *secretary-treasurer*.

s/D. E. MADSEN, *Secretary-Treasurer*.

### Wisconsin

Dr. G. H. Harland of Pewaukee made a recent state-wide broadcast over Stations WIBA and WHA on the subject, "Sheep Health." Dr. T. H. Ferguson of Lake Geneva broadcast over the same stations on the subject, "Shipping Fever."

## COMING MEETINGS

District of Columbia Veterinary Medical Association. Mayflower Hotel, Washington, D. C., May 9, 1944. W. H. Mohler, 5508 Nebraska Ave., N.W., Washington 15, D. C., *secretary-treasurer*.

South Carolina State Veterinary Medical Association. Wade Hampton Hotel, Columbia, S. Car., June 26-27, 1944. R. A. Mays, 415 Calhoun State Office Bldg., Columbia, S. Car., *secretary-treasurer*.

North Carolina State Veterinary Medical Association. Carolina Hotel, Raleigh, N. C., June 28-29, 1944. J. H. Brown, Tarbor, N. C., *secretary*.

Virginia State Veterinary Medical Association. Hotel Roanoke, Roanoke, Va., July 12-13-14, 1944. E. P. Johnson, Box 593, Blacksburg, Va., *secretary*.

American Veterinary Medical Association, eighty-first annual meeting. Palmer House, Chicago, Ill., Aug. 22-24, 1944. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., *executive secretary*.

American Public Health Association. Hotel Pennsylvania, New York, N. Y., Oct. 3-5, 1944. Reginald M. Atwater, 1790 Broadway, New York, N. Y., *chairman*, program committee.

Eastern Iowa Veterinary Medical Association. Hotel Montrose, Cedar Rapids, Iowa, Oct. 10-11, 1944. C. C. Graham, Wellsburg, Iowa, *secretary*.

United States Live Stock Sanitary Association. LaSalle Hotel, Chicago, Ill., Dec. 6-7-8, 1944. R. A. Hendershott, Trenton, N. J., *secretary-treasurer*.

## STATE BOARD EXAMINATIONS

**Massachusetts**—The Massachusetts Board of Registration in Veterinary Medicine will hold examinations for registration at the State House, Boston, Mass., May 9-10, 1944. The latest date for filing applications is April 25, 1944. Address inquiries to B. S. Killian, Secretary of the Board, Room 413-N, State House, Boston 33, Mass.

## BIRTHS

To Lt. (Tex., '43) and Mrs. H. J. Magrane, 1207 Lincoln Way W., Mishawaka, Ind., a son.

To Dr. (M.S.C., '42) and Mrs. Emery J. Yocum, Culver, Ind., a daughter, Shari Kathleen, March 3, 1943.

To Dr. (M.S.C., '40) and Mrs. H. Marvin Bratt, 706 S. 24th St., Terre Haute, Ind., a son, H. Marvin, 2nd, Oct. 4, 1943.

To Dr. (M.S.C., '43) and Mrs. Herbert J. Benson, 618 Barnard St., Howell, Mich., a son, Robert William, Oct. 28, 1943.

To Dr. (M.S.C., '43) and Mrs. Ivan H. Wood, 22 Grand Ave., Mt. Clemens, Mich., a son, Brian Claude, Oct. 28, 1943.

To Dr. (M.S.C., '41) and Mrs. John J. Kortember, 910 Bell Ave., New Haven, Ind., a daughter, Roseann, Dec. 14, 1943.

To Dr. (I.S.C., '40) and Mrs. F. E. Brutsman, Traer, Iowa, a son, William Dale, Dec. 31, 1943.

To Dr. (M.S.C., '43) and Mrs. James R. Ritchie, R.F.D. No. 1, Plymouth, Mich., a daughter, Cheryl Mary, Jan. 3, 1944.

To Dr. (M.S.C., '41) and Mrs. Don R. Morrill, Dept. of Veterinary Medicine, Oregon State College, Corvallis, Ore., a daughter, Cathay Alice, Jan. 8, 1944.

To Dr. (I.S.C., '34) and Mrs. Earl M. Walker, 4985 Clay St., Denver 11, Colo., a daughter, Garnet Frances, Jan. 17, 1944.

To Dr. (M.S.C., '43) and Mrs. Raymond Beebe, 518 N. Stewart, Fremont, Mich., a son, Raymond Ivan, 2nd, Jan. 19, 1944.

To Dr. (Corn., '40) and Mrs. Herbert Shear, Sunrise Highway, Baldwin, N. Y., a daughter, Carol Ellen, Jan. 22, 1944.

To Dr. (A.P.I., '41) and Mrs. W. A. Jordan, Jr., Auburn, Ala., a son, Jan. 29, 1944.

To Dr. (I.S.C., '38) and Mrs. Chas. H. Cunningham, Rhode Island State College, Kingston, R. I., a daughter, Mary Louise, Feb. 3, 1944.

To Lt. (U.P., '37) and Mrs. I. M. Saturen, 309 N. Marshall St., Philadelphia 6, Pa., a daughter, Judy Lea, Feb. 16, 1944.

To Dr. (Colo., '42) and Mrs. R. N. Crawford, c/o Dr. J. C. Wright, 1039 Marietta St., Atlanta, Ga., a son, Clinton Charles, March 7, 1944.

## MARRIAGES

Dr. F. Murray Iobst (U.P., '43) R.D. No. 1, Allentown, Pa., to Miss Normalee Stoddard, Nov. 25, 1942.

Dr. Russell Munro (M.S.C., '43) Zeeland, Mich., to Miss Margaret Pikeart, June 5, 1943.

Dr. Leo G. Krause (M.S.C., '42) St. Johns, Mich., to Miss Barbara A. Gardiner, July 3, 1943.

Dr. Benjamin Bisgeier (M.S.C., '40) Dept. of Public Health, 18 S. Perry St., Pontiac, Mich., to Miss Norma R. Newman, Sept. 5, 1943.

Lt. Palmer S. Myhers (M.S.C., '43) Eleva, Wis., to Miss Grace Tollefson, Oct. 9, 1943.

Lt. K. L. McLeod (M.S.C., '43) 908 E. Penn St., Hoopston, Ill., to Miss Velma J. Muchmore, Nov. 13, 1943.

Dr. Lauriston B. Farnsworth (M.S.C., '43) Lakeview, Mich., to Miss Frances McCleery, Dec. 26, 1943.

Lt. Morton Meisels (Corn., '41) 325 W. End Ave., New York, N. Y., to Miss Nancy Ann Goodman, Jan. 23, 1944.

## DEATHS

Mrs. Mary Forrey Baker, 81, wife of the late Dr. A. H. Baker, long-time dean of the Chicago Veterinary College, passed away March 21, 1944, at her home in Chicago. Mrs. Baker was affectionately known to veterinary students through many years for her motherly relationship to them, and was universally known throughout the United States as "Ma Baker."

James R. Corliss (K.C.V.C., '15), aged 53, Newport, Vt., died Feb. 3, 1944. He was a member of the Maine Veterinary Medical Association and the Vermont Association. Dr. Corliss came to Newport last October from Somerville, Mass., where he left a position with the U. S. Bureau of Animal Husbandry because of ill health. Surviving are his wife, Margaret Tierney Corliss, and daughter, Mary Hannah. Dr. Corliss joined the AVMA in 1920.

Bernard J. Drolet (U.P., '15), aged 65, Newark, N. J., died Feb. 6, 1944, at his home. He was chief veterinarian of the Newark Health Department and was admitted to membership in the AVMA in 1941.

Geo. Howell (O.V.C., '93), aged 80, Vancouver, B. C., died Mar. 7, 1944. He had been a member of the British Columbia Association for thirty-three years.

Joseph Jacobs (N.Y.S.V.C., '18), aged 55, Hobart, N. Y., died in August, 1943. He was in the federal meat inspection service at the time of his death. He joined the AVMA in 1918.

Thomas J. Jensen (C.V.C., '15), aged 57, Arkdale, Wis., died Feb. 24, 1944, following an operation. Since 1915 he has practiced in his native state. He was admitted to the AVMA in 1929. He is survived by his wife, Emma Berg Jensen, and a son who is stationed at Fort Benning, Ga.

T. J. Mahaffey (U.P., '07), aged 63, of Jacksonville, Fla., died Dec. 11, 1943, at his home of a heart attack. He was born Aug. 14, 1880. He engaged in the practice of veterinary medicine in Jacksonville from 1907 to 1934, and was for twenty years Meat Inspector for the city of Jacksonville, which position he held at the time of his death. Dr. Mahaffey was a charter member of the Florida State Veterinary Medical Association and was untiring in his efforts to advance the veterinary profession in Florida.

He is survived by his widow, Mrs. Minnie Brickwedel Mahaffey, and a son, Lieut. Conrad Mahaffey.

William J. Pirie (C.V.C., '18), aged 64, died Jan. 25, 1944. He was born at Norway, Ia., Nov. 3, 1879. He was a member of the Iowa, Eastern Iowa, and East Central Iowa Veterinary Medical Associations; of the last named he was a charter member and the first president. He held many offices in the Eastern Iowa Association. For twenty-five years Dr. Pirie was a breeder and exhibitor of fancy poultry.

Thomas E. Robinson (Ont., '92), Westerly, R. I., died Feb. 25, 1944. He was born Dec. 14, 1872, at Glastonbury, Conn. After graduation, he located in Westerly, where he resided until he died. In 1921, he was appointed state veterinarian. He was a former president of the U. S. Sanitary Livestock Association. Dr. Robinson had been a member of AVMA since 1901.

Earl E. Romberger (U.P., '21), aged 50, Reading, Pa., died Feb. 14, 1944. He had held the position of meat and milk inspector for about fifteen years. Dr. Romberger was largely responsible for the Reading milk inspection code, regarded as one of the most effective and advanced in the country. He established a hospital specializing in the treatment of dogs, and he engaged actively in the assembling and training of dogs for war service. He joined the AVMA in 1923.

Dale J. Yokum (K.S.C., '40), aged 28, Iola, Kan., died in India on Jan. 29, 1944, while in the service of his country.

# THE VETERINARY PROFESSION AND THE WAR

## Procedures Given for Selecting ASTP Medical, Dental and Veterinary Trainees

The following release was issued by the War Department Bureau of Public Relations on March 2, 1944:

As recently announced by the War Department, soldiers who remain in the Army Specialized Training Program after April 1, 1944, will be primarily those assigned to courses in medicine, dentistry, veterinary medicine and in advanced engineering.

Procedures governing selection of medical, dental and veterinary trainees were announced today. Meanwhile, procedures for the selection of trainees in engineering and foreign area and language to be retained now are under consideration. In addition, broad expansion of the Army Specialized Training Reserve Program is contemplated, with details to be announced publicly soon.

Enlisted men now assigned to the Army Specialized Training Program for instruction in medicine, dentistry, and veterinary medicine will be continued in the program. Also, ASTP soldiers currently enrolled in preprofessional courses will be continued in those studies and, upon successful completion of that work, will be advanced to the medical or dental phase of the program.

Assignment to training in medicine and dentistry in the ASTP for the remainder of the year will be made from among enlisted men who prior to April 1, 1944, have been accepted for 1944 classes in contracting medical and dental schools.

Civilians now in medical or dental schools and those who have been accepted for a 1944 class in an accredited medical or dental school but who did not receive a call for induction prior to March 1, 1944, will not be assigned for ASTP training in medicine or dentistry.

Selection for preprofessional and subsequent professional training in medicine and dentistry will be restricted to soldiers who have completed their basic military training and have accomplished one of the following:

1) Passed an aptitude test for medical profession upon successful completion of Term 2 or Term 3 in the Army Specialized Training Reserve Program.

2) Received a satisfactory score in the Army-Navy (A-12, V-12) College Qualifying Test (men in this group must have satisfactorily completed at least a year of premedical or premedical studies as civilians.)

Priority will be given in the order as outlined. Any additional vacancies may be filled by soldiers selected on the basis of their proved abilities and academic background.

### Essential Activities List Revised

A complete revision of essential activities, including changes up to and including Jan. 15, 1944, was released by the War Manpower Commission on February 25. The criteria followed in determining essentiality are (1) activities directly engaged in production of war material; (2) activities necessary for maintenance of production of war materials; (3) activities essential for the maintenance of national safety, health and interest, such as medical, nursing and welfare services. The list consists of 35 broad categories among which are included the following that are of special interest to veterinarians:

#### AGRICULTURE

(a) *Agricultural Products*.—Livestock and livestock products including beef cattle, dairy cattle, hogs, poultry, sheep, and goats, various crops, etc.

(b) *Agricultural Services*.—Animal husbandry services, animal breeding, commercial poultry hatcheries, etc.

#### PROCESSING OF FOOD

Meat packing and slaughtering (including poultry), production of dairy products, eggs, etc.

#### PRODUCTION OF CHEMICALS AND ALLIED PRODUCTS

Drugs, medicines, and insecticides; biological products, drugs of animal origin, pharmaceuticals, insecticides, fungicides, fumigants, rodenticides, and laboratory animals for biological and pharmaceutical experimentation, etc.

#### HEALTH AND WELFARE SERVICES

Offices of physicians, surgeons, dentists, veterinarians, oculists, osteopaths, and sanitary



engineers; medical, dental and optical laboratories; pharmaceutical services; hospitals; etc. **EDUCATIONAL SERVICES**

Public and private industrial and agricultural vocational training; elementary, secondary, and preparatory schools; junior colleges, colleges, universities, and professional schools; educational and scientific research agencies, etc.

### Capt. (now Major) Harry J. Robertson Awarded Legion of Merit

Capt. Harry J. Robertson, V. C., USA, formerly of Philadelphia, Pa., and the Angell Memorial Hospital, Boston, Mass., was awarded the Legion of Merit by General Eisenhower for "exceptionally meritorious conduct in the performance of outstanding services while serving as a veterinary officer in the Iceland base command from the third of March, 1942, to the thirty-first of August, 1943." The citation accompanying the award read as follows:

By direction of the President, under the provision of AR, No. 600-45, 22 September, 1943, the Legion of Merit is awarded to the following:

Captain Harry J. Robertson, Veterinary

Corps, U. S. Army, for exceptionally meritorious conduct in the performance of outstanding services while serving as a veterinary officer in Iceland base command from the third of March, 1942, to the thirty-first of August, 1943. In addition to his military duties, Captain Robertson conducted extensive tests and research in two diseases of domestic animals then prevalent in Iceland, administered preventive inoculations to large numbers of cattle, sheep and hogs, and advised and assisted Icelandic farmers in many ways. As a result of his efforts, the farmers in Iceland have been greatly benefitted and the internal economy of the country has been materially improved, thereby enhancing the already friendly relationship between Iceland and the United States.

(Signed) Eisenhower.

Dr. Robertson graduated from the School of Veterinary Medicine, University of Pennsylvania, in 1939. He accepted a reserve commission in the Veterinary Corps in June of that year, and was called to active duty early in 1941. The above named award is the highest ever given a non-combatant officer.

### Living in "Holes"

Listen to what Cousin Harry writes: "We're sick and tired living in a small war worker's house and Emily says it's getting tougher to get gas for her car. So we're moving to a bigger house in town, closer to the movies."

Happily, there are not too many Harry's and Emily's running loose in the national pasture, for where personal comfort dominates there is also comfort for the enemy.



—Courtesy of Home Life

## TO AID

in avoiding a widespread outbreak of Equine Encephalomyelitis in 1944 (which would be a national calamity in war time), for the third consecutive year we are engaging in a widespread publicity campaign through farm papers emphasizing the importance of early, pre-season immunization of horses by veterinarians. These advertisements will appear near the first of April and May in:

Weekly Kansas City Star

Prairie Farmer

Wisconsin Agriculturist

The Farmer

Wallaces' Farmer

Dakota Farmer

Western Farm Life

Nebraska Farmer

Total farm circulation over two million

### Our 1943 ENCEPHALOMYELITIS VACCINE

is now being distributed, and adequate supplies are available either direct or from reputable jobbers throughout the United States.

ALL VACCINE IN OUR STOCK IS REALLY FRESH,—WE DO  
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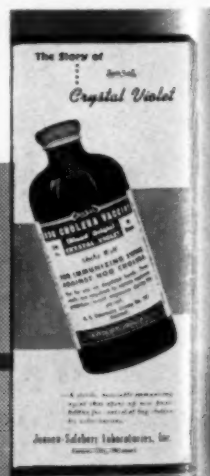
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weaned less  
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direction, by veterinarians.

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